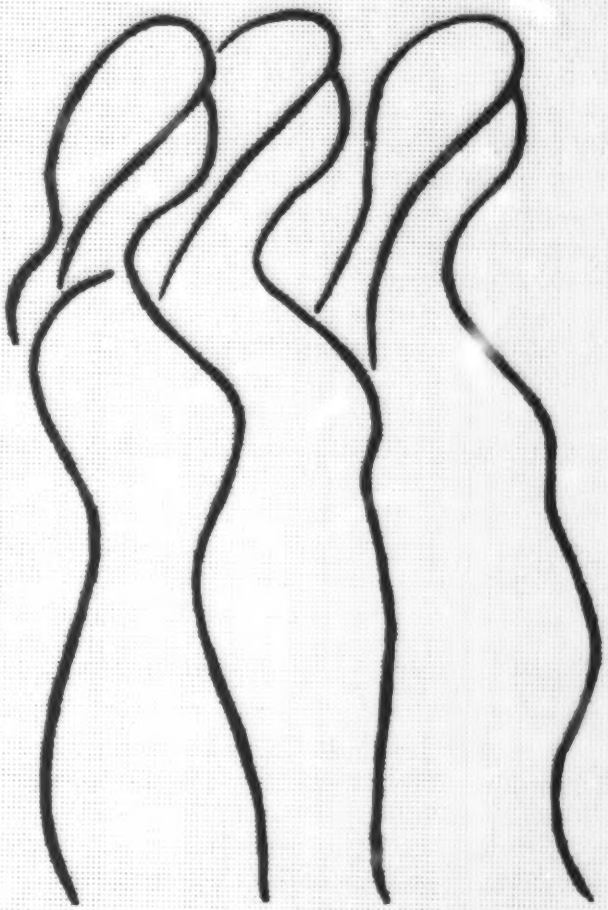

Alberta Reproductive Health: Pregnancy Outcomes

REPORT

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Alberta Reproductive Health: Pregnancy Outcomes

December 1999

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Table of Contents

Executive summary 5
Fertility 6
Birth Outcomes 6
Deliveries 6
Induced Abortions 6
Mortality 6
Introduction 8
Data sources 8
Methodology and Limitations 8
Fertility 10
Estimated pregnancies 10
Fertility rates 10
Maternal Age 12
Birth Outcomes 13
Live Births 13
Stillbirths 13
Birth Weight 14
Low birth weight 15
Small for gestational age 18
High birth weight 18
Pre-Term Births 18
Multiple Births 21
Deliveries 26
Type of Labour 26
Method of Delivery 28
Out-of-Hospital Births 30
Induced Abortions 30
Mortality 31
Perinatal Mortality 31
Infant Mortality 32
Neonatal mortality 34
Post-Neonatal mortality 36
Maternal Mortality 36

References 37

Appendix 1: Definition of Stillbirth and Infant Death 39

Appendix 2: Glossary 40

Appendix 3: International Classification of Disease – 9th Revision – Clinical Modification (ICD-9-CM) Codes 42

Appendix 4: Epidemiologic Measures for Maps 43

Appendix 5: List of Tables 46

Executive summary

This report follows the April 1999 Alberta Reproductive Health: Pregnancy Outcomes report. The April 1999 report was based on data for the fiscal years 1985-86 to 1996-97. The current report is based on the most recent available Alberta data by calendar year rather than fiscal year, which includes data up to the end of calendar year 1997 or 1998, depending on the data source. New to the report is the information on small-for-gestational age and large-for-gestational-age births and high birth weight births. More detailed analyses on pre-term birth and multiple birth are also provided. Stillbirth data for 1998 were unavailable at the time of preparation of this report.

Data sources for this report include: Vital Statistics, Alberta Health and Wellness Administrative databases, Statistics Canada publications, and the hospital statistics reported to the Alberta Medical Association (AMA) Committee on Reproductive Care. Information on live births, stillbirths, induced abortions, procedures related to delivery, and perinatal, neonatal, infant, and maternal mortality is provided. Wherever possible and appropriate, data are broken down for regional health authority, age groups, time trends, and risk factors. "Residence RHA" refers to the regional health authority in which the mother resided at the time of the relevant event, and "Facility RHA" refers to the regional health authority where the relevant event occurred.

Overview

The birth rate in Alberta is declining while mother's age at delivery continues to rise. These trends are in line with the Canadian national trends. The decrease in fertility and delay in childbearing have important implications for health service planning and the health of women and children. Older maternal age is associated with poorer birth outcomes and higher risk of complications during pregnancy and delivery. Increased maternal age contributes to the increase of low birth weight rate and use of operative procedures for delivery.

The low birth weight rate in Alberta continues to increase although not by a large amount (rate was 5.4% in 1985 and 6.2% in 1998). Low birth weight is an important health indicator. Babies with low birth weight are more likely to have complications related to birth as well as long-term health problems. Risk factors for low birth weight include smoking and alcohol consumption during pregnancy, lack of education, lower income and older maternal age. On average, about 55% pre-term births and 50% of multiple births are low birth weight. In Alberta, both pre-term birth rate and multiple birth rate have shown an increase over the past 14 years, while the low birth weight rate for singleton term babies remained relatively stable. Thus, the increase of overall low birth weight rate is likely influenced by the increase of pre-term birth and/or multiple birth some of which may be due to the use of fertility-enhancing drugs and in vitro fertilization. A study on the causes of low birth weight including the effect of in vitro fertilization is currently underway and results are expected in the Spring of 2000.

The number of induced abortions in 1998 was comparable to that in 1997, although the overall long term time trend is towards increasing. About 42% of induced abortions in Alberta are performed in private clinics in Alberta in 1998. Both induction rate and caesarian section rate have increased over time. This may reflect change in practice patterns as well as the influence of increasing high birth weight rate and increasing maternal age. Further studies are needed to elucidate this relation.

The Alberta infant mortality rates have shown a dramatic decline, dropping from a high of 8.9 in 1986 to a low of 4.9 in 1997 which was lower than Canadian average. The neonatal and post-neonatal mortality rates have also decreasing. These statistics possibly reflect the improvements in neonatal and infant care in Alberta.

Major Findings

Fertility

- The decline in General Fertility Rate (number of live births per 1,000 women aged 15-49) that has been noted over the last several years continued through to 1998. Over the last 14 years, the General Fertility Rate has declined dramatically: The drop from 66.1 in 1985 to 48.6 in 1998 is a 26.5% decrease.
- The estimated pregnancy rate (per 1,000 women aged 15-49, including live births, stillbirths, and induced abortions) has correspondingly shown a steady decline, from 76.5 in 1985 to 62.3 in 1997. This is a decrease of 18.6% over 13 years.
- Average maternal age at delivery appears to have stabilized over the last few years after a steady increase from 1985 to 1996. The average is currently 28.1 years, up 1.6 years from the 1985 average of 26.5 years.

Birth Outcomes

- While the number of live births has decreased substantially over the period studied, from 43,327 in 1985 to 37,609 in 1998, the number of stillbirths has remained relatively stable, showing no significant linear time trend.
- The low birth weight rate (live births less than 2,500 grams, per 100 live births) has increased over the period studied, with a rate of 5.4 in 1985 compared to 6.2 in 1998.
  - There are regional differences in the low birth weight rate (see Map 2). For 1996 to 1998 combined, RHA 4 had a higher rate than the provincial average. The rate was lower than the provincial average in RHA's 1, 5, 8, 11, 13, 16, and 17.
- The small for gestational age (birth weight below the 10th percentile of appropriate for gestational age infants) rate for singleton live births has decreased from 11.1 per 100 singleton live births in 1985 to 8.9 in 1998.
- The large for gestational age (birth weight above the 90th percentile of appropriate for gestational age infants) rate has increased from 9.7 per 100 singleton births in 1985 to 11.7 in 1998.
- There is an increasing trend in the rate of pre-term births (live births with gestation periods of 37 weeks or less, per 100 live births). The rate in 1985 was 6.5, while the 1998 rate was 7.5.
- The multiple birth rate (per 100 live births) has also increased from 2.0 in 1985 to 2.7 in 1998.

Deliveries

- The total induction rate (per 100 hospital deliveries) has increased over the period studied. In 1985, 12.6% of deliveries were induced; by 1998, the rate had nearly doubled to 24.0%.
- After peaking in 1987 and 1988, the caesarean section rate declined into the mid-1990's. Since 1996, the rate has been increasing and was 17.3 (per 100 hospital deliveries) in 1998.
- The use of forceps has declined from 14.6 (per 100 hospital deliveries) in 1985, to 6.5 in 1998; the use of vacuum extraction has concurrently shown an increase, from 0.3 in 1985 to 10.8 in 1998.
- The number of planned home births has risen since 1993, with a total of 212 planned home births occurring in Alberta in 1997. This is a rate of 5.8 planned home births per 1,000 total births.

Induced Abortions

- The induced abortion rate (per 1,000 women aged 15-49) has fluctuated somewhat over the last 15 years, but has increased overall, from 9.9 in 1985 to 13.4 in 1998.

Mortality

- See Appendix 1 for mortality definitions used in this report.

- The perinatal mortality rate in 1997 was 10.3 (per 1,000 total births). No time trend is apparent in this rate from 1985 to 1997, as with the stillbirth rate.
  - The stillbirth rate for births 500 grams and higher was 4.9 in 1997.
  - The perinatal mortality rate for births 500 grams and higher was 7.2 in 1997.
- 1997 and 1998 data show a dramatic decline in infant deaths, which had already shown a pattern of decline from 1985 to 1996.
  - In 1985, the infant mortality rate (per 1,000 live births) was 7.9; the rate for 1998 was 4.7.
    - Infant mortality rates for residence RHA's for 1996 to 1998 combined show that RHA 4 had a lower rate than the provincial average while RHA 17 had a higher rate than the provincial average (see Map 9).
  - Both neonatal and post-neonatal rates have shown declines.
    - The neonatal mortality rate was 2.8 in 1998, compared with 4.7 in 1985.
    - The post-neonatal mortality rate was 1.9 in 1998, and 3.3 in 1985.
- In 1997, there was 1 maternal death, directly related to pregnancy.

For further information on any aspect of the report, please contact the Health Surveillance Branch of Alberta Health and Wellness, or the Alberta Medical Association Committee on Reproductive Care.

Introduction

This document is a result of continued collaboration between Alberta Health and Wellness and the Alberta Medical Association in reporting on the reproductive health of Albertans.

Data consist of pregnancy outcomes for the calendar years 1985 to 1997 or 1998, including:

- live births and stillbirths
- low birth weight and high birth weight
- birth weight in relation to gestational age
- pre-term births
- multiple pregnancies and births
- operative deliveries and induction of labour
- induced abortions
- perinatal, neonatal, and infant mortality
- maternal mortality

Data are for Alberta residents unless otherwise stated. Regional data (by regional health authorities) are provided where appropriate. Some data are broken down by relevant factors such as maternal age or birth weight groupings. National comparisons are made where possible. At the time of preparation of this document, national data were available for most measures only to the end of 1996 (and in some cases, only to the end of 1995).

Data sources

- Vital Statistics Birth Registration files, Department of Government Services
- Vital Statistics Death Registration files, Department of Government Services
- Clinic Files, Alberta Health and Wellness
- Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness
- Fee-for-Service Claims Files, Alberta Health and Wellness
- Alberta Health Care Insurance Plan Stakeholder Registration File, Alberta Health and Wellness
- Data from medical record departments from hospitals in Alberta
- Perinatal, infant, and maternal death cases from hospitals in Alberta
- Reports from follow-up clinics for neonates and infants
- Statistics Canada publications

Methodology and Limitations

- Statistical analyses are mainly descriptive, including frequencies, rates, percentages, means and medians. Regional differences are interpreted in terms of standard errors and confidence intervals.
    - With rare events (e.g., stillbirth) or detailed break-downs (e.g., live births by age group of mother, RHA, and year), rates may be based on small numbers, which reduces their statistical reliability. Caution should always be exercised in interpreting these rates.
    - Because of differences in definitions and dates of extracting data for analyses, the statistics in this report may not be exactly the same as those previously published by Alberta Health and Wellness.
- Birth statistics are derived from Vital Statistics Birth Registration Files. Registration of births in Alberta is a legal requirement, and the files are believed to be virtually complete. Births to non-Alberta residents occurring in Alberta have been excluded.
- The Clinic Files contain information on induced abortions. Regional comparisons are provided from both facility and residence perspectives. However, because region by residence information is not available in the Clinic Files, it is extracted from Fee-for-Service

Claims file and numbers may not match exactly due to data source differences. Abortions for non-Alberta residents have been excluded.

- Method of delivery and induction data are derived from the Hospital Morbidity Files. Rates are calculated based on hospital deliveries only; home deliveries are not included in total deliveries in this section. Because only primary, secondary, and tertiary ICD9-CM (International Classification of Disease-9th Revision-Clinical Modification) diagnostic and procedure codes were available from 1985 to 1992, the diagnostic and procedure criteria for all years were based on the first three codes only. Thus, the number of procedures (especially minor procedures) may be under-counted. Detailed criteria for data extraction are provided under relevant tables and in Appendix 3.
- The AMA Committee on Reproductive Care obtains mortality data from case reviews of stillbirth, neonatal, and maternal deaths, provided by medical records departments of hospitals. These are verified by cross-referencing to Vital Statistics files. The mortality data includes non-resident mothers that delivered in Alberta, but does not include babies born out-of-province who died in Alberta hospitals.
- National comparison data are extracted from Statistics Canada publications on births, deaths, and population.
- Populations used for the calculations of rates are derived from the Alberta Health Care Insurance Plan Registration Files. They are estimated at June 30, as viewed at December 31 of each year. Provincial rate calculations include those with an "unknown" RHA code.

Fertility

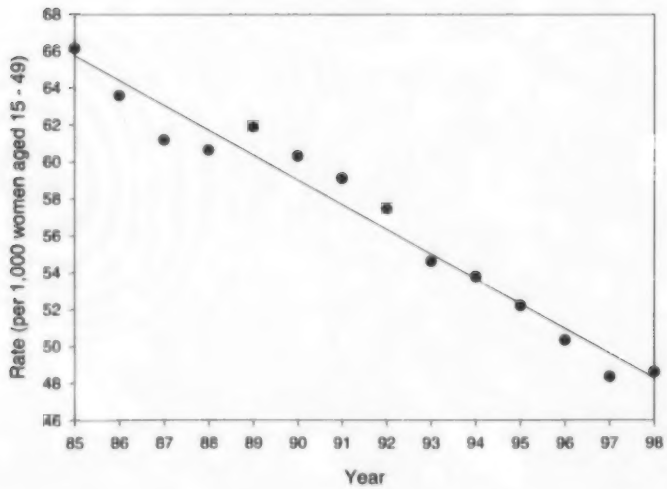
Estimated pregnancies

- An estimate of total pregnancies in the province in a given time period can be obtained by summing live births, stillbirths, and induced abortions in that period.
  - Induced abortions, abortion rates, and stillbirths by residence RHA are in Table A2.
- The estimated pregnancy rate (per 1,000 women aged 15-49) was 76.5 in 1985, falling to 62.3 in 1997 (see Table A1). Stillbirth data for 1998 are unavailable, thus the estimated pregnancy rate cannot be calculated for 1998.
  - As shown in Table A3, pregnancy rates have increased for women between 30 and 44 years over the period 1985 to 1997. There are not significant linear trends for women aged less than 15, 15-19, 20-24, 25-29, or over 44 years.
  - Women aged 25-29 years nevertheless continue to have the highest pregnancy rates of all age groups.

Fertility rates

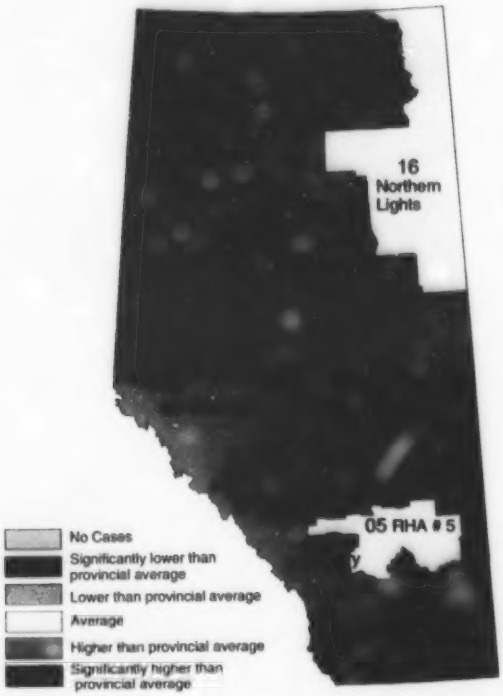
- The General Fertility Rate (number of live births per 1,000 women aged 15-49 in a given year) has shown a remarkable decrease from 66.1 in 1985 to 48.6 in 1998, a decline of 26.5% (see Table A1 and Figure 1).

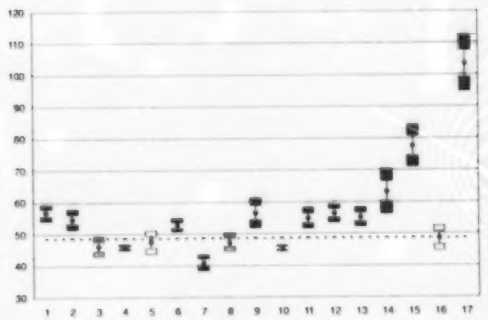
Figure 1
General Fertility Rate, Alberta



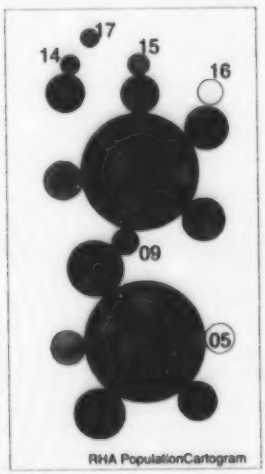
  - General Fertility Rate varies across the RHA's, with rates being higher in most northern RHA's and some southern RHA's (Map 1. For mapping methodologies, see Appendix 4). The decrease in General Fertility Rate between 1985 and 1998 is consistent across most RHA's in Alberta (Table A4).
- Total Fertility Rate (number of live births per 1,000 women aged 15-49 over a lifetime) is an estimate of average family size. This rate has declined in Alberta from 1,887 in 1985 to 1,730 in 1998 (see Table A1).

Map 1. General fertility rate (per 1000 women aged 15-49) by Residence RHA, Alberta, 1998



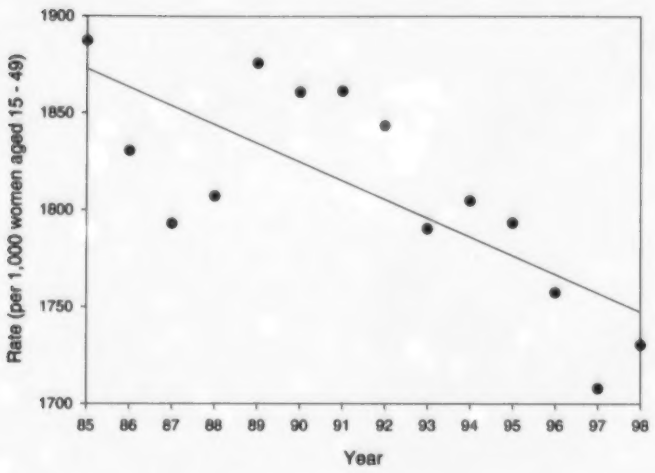


Provincial Rate = 48.59



- Time trends in Total Fertility Rate in Canada mirror those found in Alberta, although Alberta Total Fertility Rates were higher each year (Ford & Nault, 1996; Statistics Canada, 1999b, 1999d). Figure 2 shows Alberta Total Fertility Rates.

Figure 2
Total Fertility Rate, Alberta

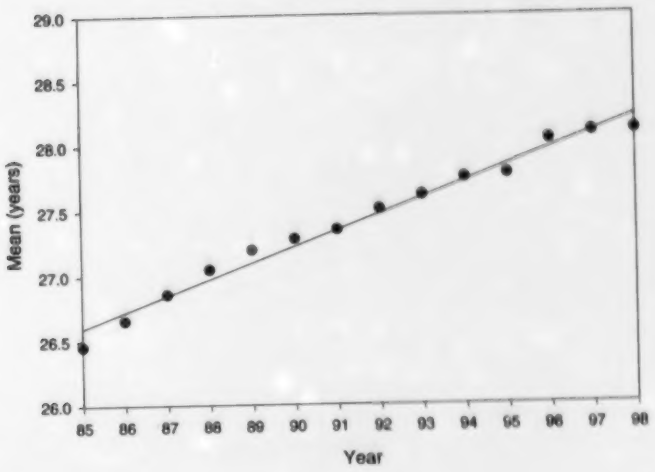


- Age-specific fertility rates show declining fertility over the last few years in all age groups under 30 years, while fertility has been increasing for women aged 30 to 44 years (see Table A5).
  - The same age trend is apparent in national data (Ford & Nault, 1996; Statistics Canada, 1999b).
  - Table A6 shows age-specific fertility rates for the RHA's for 1996 to 1998.

Maternal Age

- Mothers 30 years and over are more likely than mothers aged 20-29 years to have caesarean sections, low birth weight births, pre-term births, maternal complications, and infants with chromosomal anomalies (MacNab, Macdonald, & Tuk, 1997). Teenaged mothers are more likely than mothers aged 20-29 to have low birth weight or pre-term infants (Tough, Svenson, & Schopflocher, 1999).
- In 1985, the average age of mothers at delivery was 26.5 years. In 1998, the average was 28.1 years (see Table A7). This is a significant linear trend (see Figure 3).
  - Alberta mothers tend to be younger than the national average, but Canadian data demonstrate that delayed childbearing is a national phenomenon. Mean maternal age in Canada in 1985 was 27.3, increasing to 28.8 in 1995 (Statistics Canada, 1997a).
  - The average maternal age at delivery for live birth by residence RHA for 1995, 1996 and 1997 combined is shown in Table A8. It appears that RHA's 3, 4 and 10 have more older mothers (28 to 29 years) than the rest of the province while mothers in RHA's 15 and 17 are relatively younger (25 years).
- Maternal age at first birth has increased from 24.7 in 1985 to 26.2 in 1998 in Alberta (see Table A7).

Figure 3
Maternal Age, Alberta



Birth Outcomes

Live Births

- The total number of live births decreased between 1985 and 1998, falling 13.2% from 43,327 to 37,609 (see Table A1).
- This decrease in number of live births has occurred in spite of growth in the population of the province. This is reflected in the Crude Birth Rate (number of live births per 1,000 population), which has declined from 18.5 in 1985 to 13.2 in 1998 (see Table A1).
  - The Canadian crude birth rate underwent a similar rate of decline over the last several years, though the absolute rate was consistently higher in Alberta. In the 1997/98 fiscal year, the Canadian crude birth rate was 11.6 (Statistics Canada, 1999c), while the Alberta rate in 1997 was 13.1.

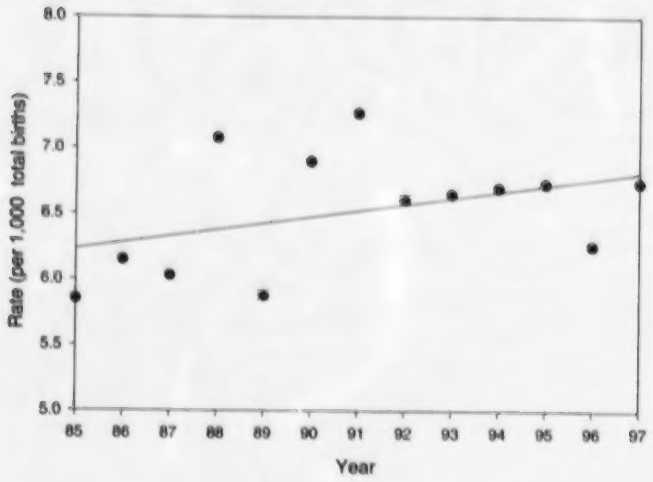
Stillbirths

- Stillbirths refer to births with the complete expulsion or the extraction from the mother after at least 20 weeks pregnancy, or after attaining a weight of 500 grams or more, of a fetus in which, after the expulsion or the extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord or unmistakable movement of voluntary muscle (Alberta Vital Statistics Act, RHA 1980,cV-4 s1).
- Many risk factors for stillbirth have been identified, such as low maternal education, smoking during pregnancy, gender (stillbirths are more often male than female), prematurity, and low birth weight (Chen, Fair, Wilkins, Cyr and the Fetal and Infant Mortality Study Group of the Canadian Perinatal Surveillance System, 1998; Tough, Svenson, & Schopflocher, 1999).
  - MacNab, Macdonald and Tuk (1997) report that multiparous but not primiparous mothers over 34 years have a higher risk of stillbirth than younger mothers.
  - There is a risk of recurrence for stillbirth. Over the period 1985 to 1997, the Alberta stillbirth rate (per 1,000 total births) for second births was 4.8 for mothers whose first birth was live, and 36.0 for mothers who had had a previous stillbirth.

- These data are comparable to a large study of Norwegian births in which the second birth stillbirth rates were 7.5 for first live births and 45.1 for first stillbirths (Oyen, Skjaerven, & Irgens, 1996).

- There were 248 stillbirths in Alberta in 1997, which is a rate of 6.7 (per 1,000 total births; see Table A1 and Figure 4). Stillbirth data for 1998 are not available. There is no statistically significant linear time trend evident in the data from 1985 to 1997.

Figure 4
Still Birth Rate, Alberta



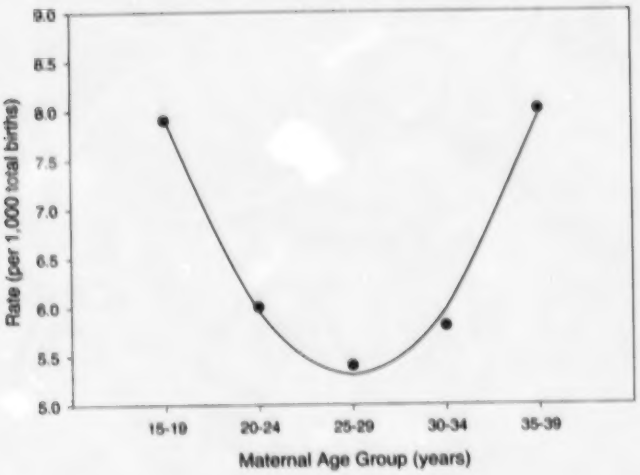
- The Canadian rates for 1995 and 1996 were 6.2 and 5.8 (Statistics Canada, 1998), compared with Alberta rates of 6.7 and 6.3 for 1995 and 1996.

- Stillbirth rates are dependent on maternal age (see Table A9). Stillbirths are more common with mothers aged less than 20 years or more than 34 years. Figure 5 shows this significant quadratic trend summed across all stillbirths from 1985 to 1997.
- Table A10 shows the number and percent of stillbirths in each of several weight categories. From 1985 to 1997 combined, 72.8 % of stillbirths were low birth weight births. Very few stillbirths occur in high birth weight infants (4,000 grams or more).
- Over the period 1985 to 1997, 71.5% of stillbirths were pre-term births.
- Table A11 discriminates between antepartum and intrapartum stillbirths for 1997. In 1997, 67.8% of stillbirths were antepartum.

Birth Weight

- In 1998, 81.5% of live births were between 2,500 and 3,999 grams, 6.2% were low birth weight (less than 2,500 grams) and 12.3% were high birth weight (4,000 or more grams) (see Table A12).
- Mean birth weight in Canada in 1996 was 3,389 grams (Statistics Canada, 1999a); the mean for Alberta in 1996 was 3,370 grams.

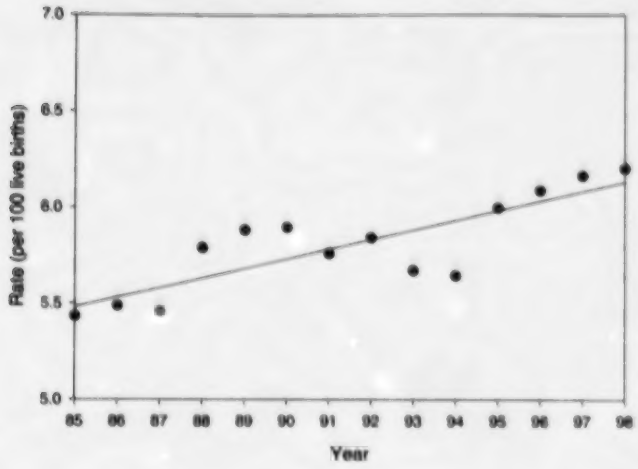
Figure 5
Stillbirths by Maternal Age, Alberta



Low birth weight

- Low birth weights are less than 2,500 grams.
- Low birth weight is correlated with a number of health concerns, including maternal, fetal, neonatal and long-term complications (Millar & Chen, 1998; Pivarnik, 1998)) and fetal and infant mortality (Chen et al., 1998; Nault, 1997) and is thus an important indicator of children's health.
- Numerous risk factors for low birth weight have been identified, including smoking or alcohol/drug use during pregnancy, low or high maternal age, low socioeconomic status, multiple pregnancy, poor prenatal care, low level of maternal education, pre-term birth, and gender (low birth weight infants are more likely to be female) (Chen et al., 1998; Pivarnik, 1998; Tough, Svenson, & Schopflocher, 1999).
- There is an inverse relationship between birth weight and rate of neurodevelopmental impairment (D'Agostino & Clifford, 1998).
- Since 1990, the low birth weight rate has included live newborns weighing less than 500 grams (see time trends in Table A12) due to changes in registration and reporting (Svenson & Schopflocher, 1997) and improvements in or access to perinatal care.
- The low birth weight rate has increased over the period studied (see Table A1 and Figure 6). In 1998, 6.2% of all live births were low birth weight births. However, the low birth weight rate for singleton term babies remained relatively stable over time (table A13), ranging from 1.8% to 2.1% in Alberta over the last 14 years. Thus, the increase in overall low birth weight rate is likely influenced by the increases in pre-term births and /or multiple births some of which may be due to the use of fertility-enhancing drugs and in vitro fertilization. A study on the causes of low birth weight including the effect of in vitro fertilization is underway and the results are expected in the Spring of 2000.
- Low birth weight rates declined in Canada from 1974 to 1990, but increased slightly from 1990 to 1994 (Ford & Nault, 1996). In 1996, the low birth weight rate was 5.7 in Canada and 6.1 in Alberta (Statistics Canada, 1999a).
- In 1998, 67.8% of low birth weight births were pre-term births (see Table A14 for time trends).
- Low birth weight births for residence and facility RHA's are in Table A15.

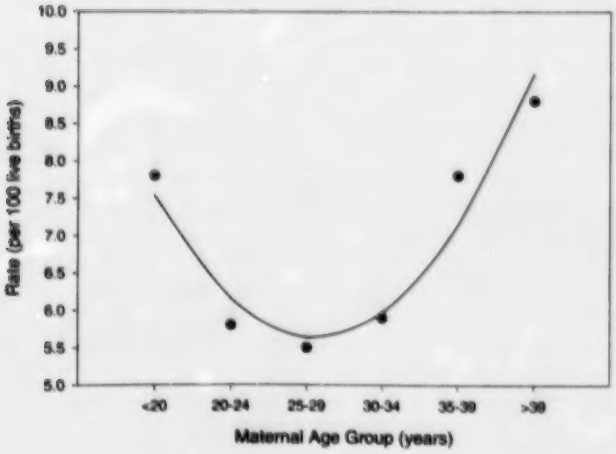
Figure 6
Low Birth Weight Rate, Alberta



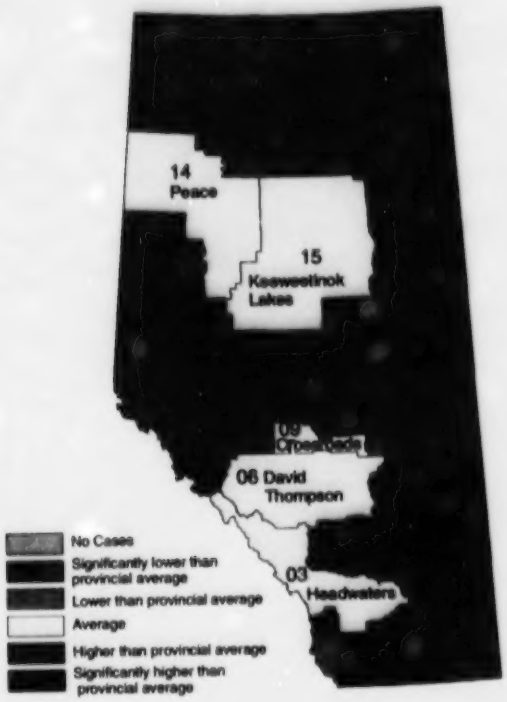
- Map 2 includes data for residence RHA's from 1996, 1997, and 1998 combined; it shows that RHA 4 has a significantly higher rate of low birth weight births than the provincial average, while RHA's 1, 5, 8, 11, 13, 16, and 17 have rates that are significantly lower than the provincial average (see Table A19 also. For mapping methodologies, see Appendix 4).

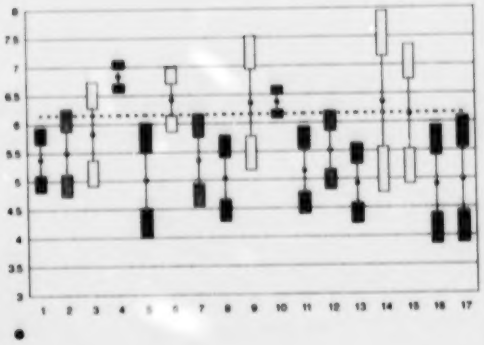
- Low birth weight rates vary with maternal age, as seen in Table A16.
- Low birth weight rates are low for mothers aged 20-34, and high for mothers aged less than 20 years or 35 years and older. This significant quadratic function for 1998 is shown in Figure 7. Note that while the *rates* are lower for mothers aged 20 to 34, the largest *number* of low birth weight births occurs to mothers in this age range.

Figure 7
Low Birth Weight Rate by Maternal Age, Alberta, 1998

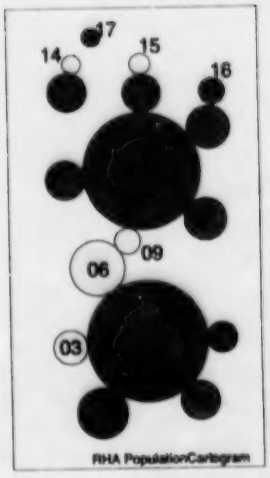


Map 2. Low Birth Weight Rate (per 100 live births) by Residence RHA, Alberta, 1996, 1997and 1998 Combined





Provincial Rate = 6.15



- The same relationship between low birth weight rates and maternal age appears in Canadian data (Nault, 1997).

Small for gestational age

- Low birth weight infants may be small for gestational age (SGA), or pre-term, or both. These types of low birth weight may have different underlying causes, as well as different effects on later development (Millar & Chen, 1998; Wallace & McCarton, 1997). Relative to pre-term appropriate for gestational age babies, pre-term SGA babies have been found to have a greater rate of cognitive impairments (Wallace & McCarton, 1997).
- SGA refers to babies whose birth weight falls below the tenth percentile of appropriate for gestational age infants. In Alberta, over the past 14 years the SGA rate for singleton live births has shown a steady decrease from a rate of 11.1 per 100 singleton live births in 1985 to 8.9 in 1998 (see Table A17).
- Regional differences are evident for the SGA rate in combined data from 1996, 1997 and 1998. Region 4 has a significantly higher SGA rate than the provincial average and rates for RHA's 1, 7, 8, 10, 11, 12 13 and 16 are significantly lower than the provincial average (see Map 3. For mapping methodologies, see Appendix 4).

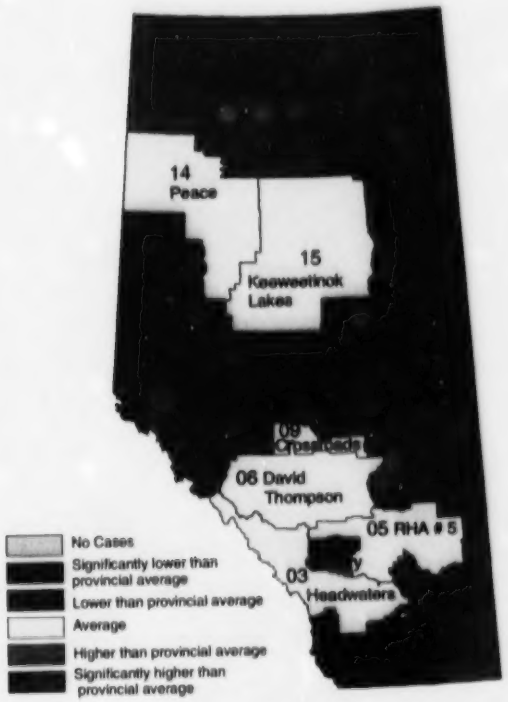
High birth weight

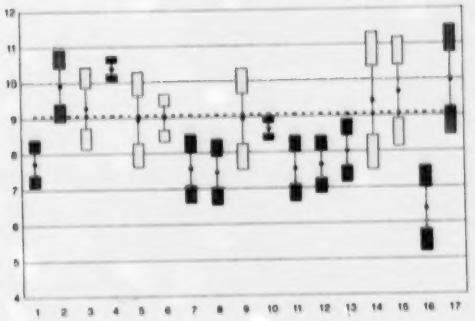
- The average birth weight has been increasing for the last 14 years, although the increase is not substantial in magnitude. Table A17 shows that the mean birth weight for term singleton births has increased by 35 grams in the past 14 years from 3,435 grams in 1985 to 3,470 in 1998. The linear trend of increase is statistically significant.
- Babies born with high birth weight (HBW, >=4,000 grams) have been associated with increased maternal complications at delivery (Poen, Felt-Bersma, Dekker, Deville, Cuesta, Meuwissen, 1997). The Alberta high birth weight rate was 12.3% in 1998 (Table A17).
- Map 4 shows that while RHA's 3, 4, and 10 have lower HBW rates, RHA's 5, 6, 8, 11, 12, 13, 14, 16 and 17 have higher HBW rates than the provincial average (see also Table A19. For mapping methodologies, see Appendix 4).
- Large for gestational age (LGA) babies are those with birth weight above the 90th percentile of appropriate for gestational age infants. Time trend information on LGA is provided in Table A17. LGA rate has increased from 9.7 per 100 singleton births in 1985 to 11.7 in 1998, an increase of 20%.

Pre-Term Births

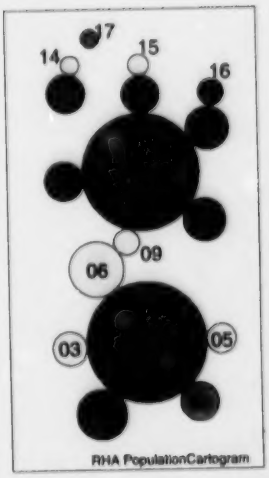
- These are births that occur prior to 37 full weeks of gestation.
- The strong correlation between gestational age at birth and birth weight means that health concerns and risk factors for pre-term infants might be similar to those for low birth weight infants (see above).
- Chen and Millar (1999) reported that children under the age of three who were pre-term and low birth weight were more likely to be in poor health (according to mothers' reports on a number of measures) than both full-term low birth weight and pre-term normal birth weight children, suggesting that both low birth weight and pre-term birth are predictive of poor early childhood health. The pre-term birth rate (per 100 live births) was fairly stable from 1988 to 1995, and has shown an increasing trend since then. The 1998 rate was 7.5 (see Table A1 and Figure 8).
- The pre-term birth rate for singleton births has varied over time, ranging from 5.5 to 6.3 in the past 14 years (see Table A18). The increasing time trend is statistically significant.
- The Canadian pre-term rate for 1996 was 7.0 (Statistics Canada, 1999a); the Alberta rate for 1996 was 7.4.
- Table A19 contrasts low birth weight and pre-term rates for residence and facility RHA's for 1996 to 1998 combined.

Map 3. Small for Gestational Age Singleton Birth Rate (per 100 singleton live births) by Residence RHA, Alberta, 1996, 1997and 1998 Combined

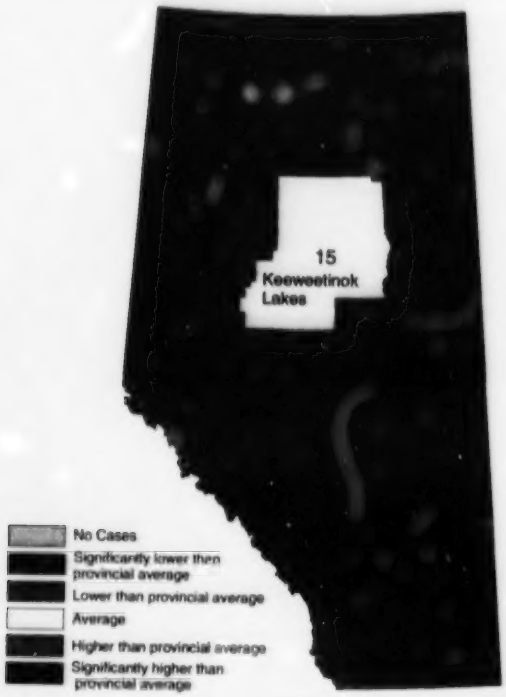


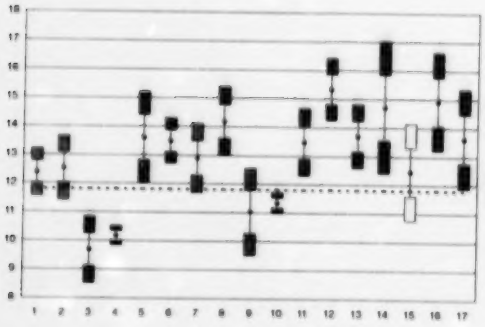


Provincial Rate = 9.06



Map 4 High Birth Weight Rate (per 100 live births) by Residence RHA, Alberta, 1996, 1997, 1998 Combined





Provincial Rate = 11.80

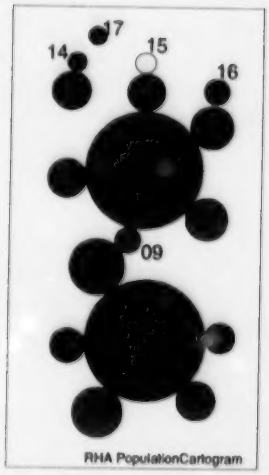
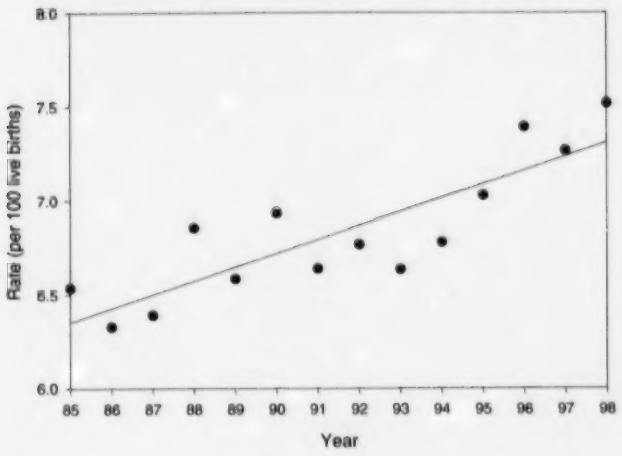


Figure 8
Pre-term Birth Rate, Alberta

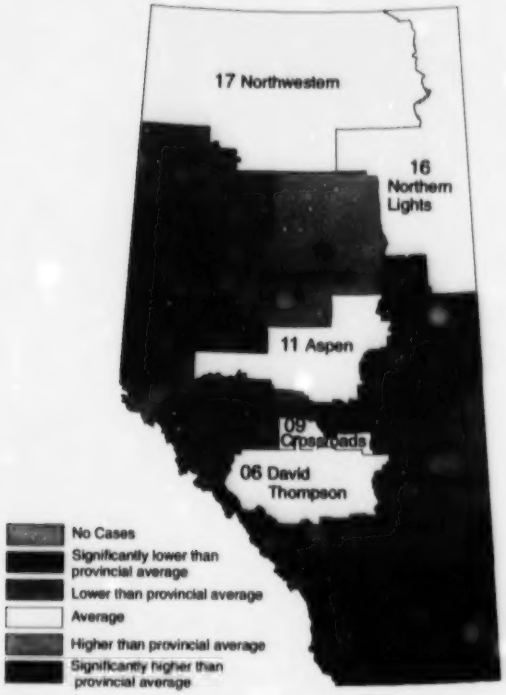


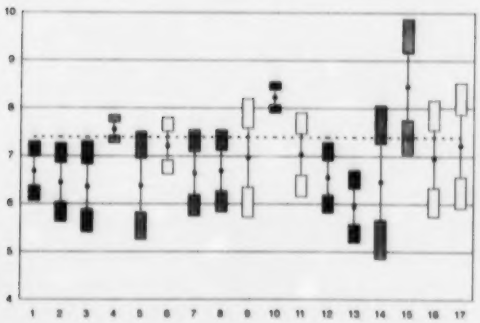
- Pre-term births for 1985 to 1998 for residence and facility RHA's are provided in Table A20.
  - Map 5 provides the residence RHA data for 1996, 1997 and 1998 combined. RHA 10 has a significantly higher pre-term birth rate than the provincial average. The rate is significantly lower than the provincial average in RHA's 1, 2, 3, 12, and 13 (For mapping methodologies, see Appendix 4).
  - Facility RHA data for 1996 to 1998 indicate that RHA's 4 and 10 (which have tertiary care centres) deliver significantly more pre-term births than the provincial average, while all other RHA's have pre-term rates lower than the provincial average.
- Maternal age is clearly related to the pre-term birth rate (see Table A21).
  - As can be seen in Figure 9, pre-term births were most likely in mothers under 20 years of age or over 34 years in 1998 (the same age groups for whom low birth weight is most common). When mothers over 39 years are excluded (their rates are more variable due to low numbers), there is a significant quadratic trend in the data for 1998.
  - This effect is mirrored in Canadian data (Statistics Canada, 1999a).

Multiple Births

- A multiple pregnancy occurs when a woman is pregnant with more than one fetus; a multiple birth occurs when more than one infant is born (whether live or stillbirth).
- Multiple pregnancy is associated with a higher incidence of maternal hypertension, post-partum hemorrhage, and caesarean section (Senat, Ancel, Bouvier-Colle, & Breart, 1998) and higher rates of intrauterine growth restriction and fetal death (Alexander, Kogan, Martin, & Papiernik, 1998).
- Multiple births are also more likely to be pre-term and result in low birth weight infants (Tough, Svenson, & Schopflocher, 1999).
- Increasing multiple birth rates are thought to be a function of both increasing maternal age and increasing use of fertility-enhancing drugs (Bowers, 1998; Luke, 1998; Alexander, Kogan, Martin, & Papiernik, 1998).
- Multiple pregnancies, multiple births and perinatal deaths of multiple births are detailed for 1997 for each of the RHA's in Table A22. Time trends for multiple pregnancies, multiple births, and perinatal deaths of multiple births are shown in Table A23.

Map 5. Pre-term Birth Rate (per 100 live births) by Residence RHA, Alberta, 1996, 1997and 1998 combined





Provincial Rate = 7.39

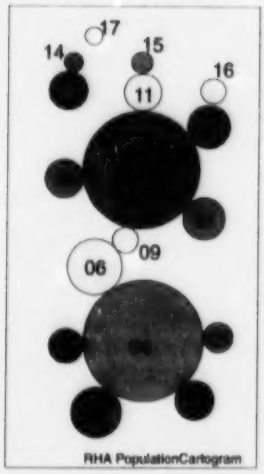
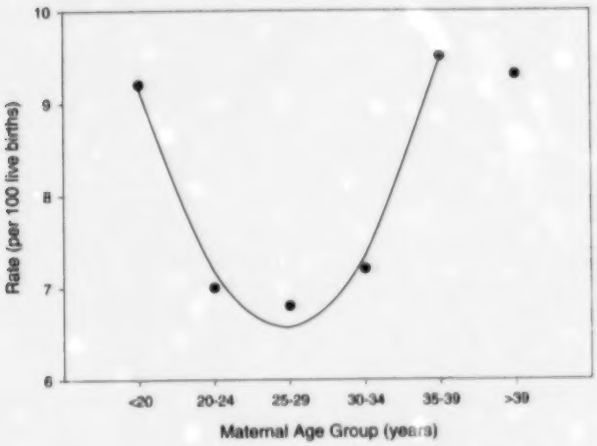


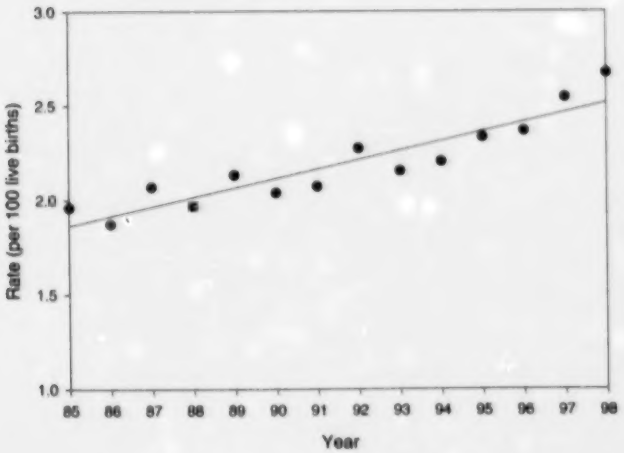
Figure 9
Pre-Term Birth Rate by Maternal Age, Alberta 1998



- The multiple birth rate (per 100 live births) remained relatively steady from 1985 to 1991, fluctuating between 1.9 and 2.1. The rate has increased over the last several years and was 2.7 in 1998 (see Table A1 and Figure 10). The linear increase from 1985 to 1998 is a statistically significant trend.
  - There were 2.4 multiple births per 100 live births in Canada in 1996 (Statistics Canada, 1999a); the rate was also 2.4 for Alberta in 1996.
  - In 1998, 96.3% of multiple live births were twin births, and 3.3% were triplet births (see Table A24).

- Multiple births for each of the residence and facility RHA's are detailed in Table A25. Rates are not provided for these frequencies, as the numbers are too small in many cases to provide reliable estimates of rates.

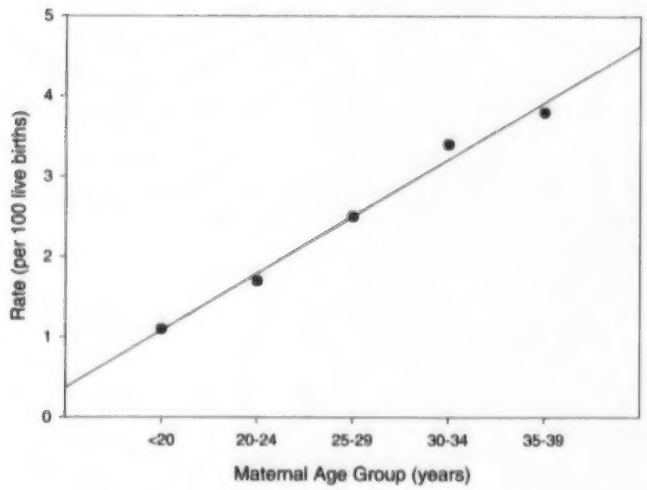
Figure 10
Multiple Birth Rate, Alberta



- When data for 1996 to 1998 are combined for residence RHA's, multiple birth rates can be seen to vary across RHA's (see Table A26). The provincial average for 1996 to 1998 was 2.5 multiple births per 100 live births. This rate was significantly exceeded in RHA 4, and the rate was significantly lower than the provincial average in RHA's 7, 12, and 13 (see Map 6. For mapping methodologies, see Appendix 4).
- While 60.3% of mothers experiencing multiple births resided in the Capital and Calgary RHA's in 1996 to 1998, fully 80.2% of multiple births occurred in these RHA's during that period (see Table A26), indicating that it is common for mothers expecting multiple births to travel to take advantage of the specialized facilities available in these centres. Rates are not provided for these data, as the number of multiple births in many of the facility RHA's is very low.

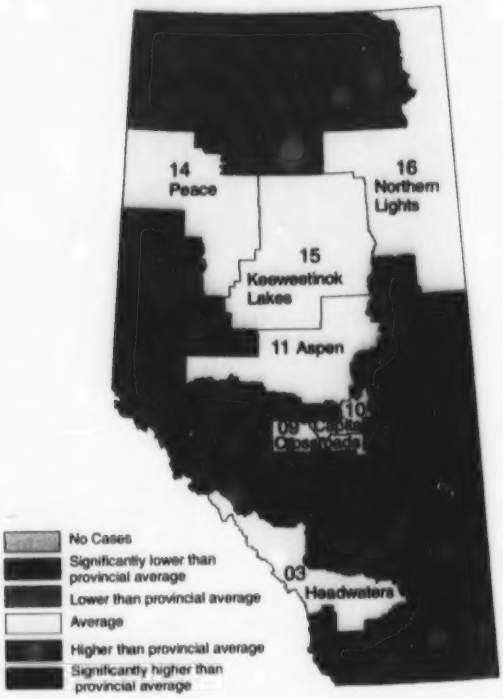
- The multiple birth rate varies with maternal age; rates are provided in Table A27. Note that rates are not provided for mothers over 39 years, as there were too few multiple births in this age group to provide reliable rate estimates.
  - The increase in overall multiple birth rate which is evident over the last few years appears to be confined to mothers aged 25 years and over; linear trends are significant only for the 25-29, 30-34 and 35-39 age groups.
  - There is a clear linear trend toward increasing multiple birth rate with increasing age. Figure 11 shows this significant trend for 1998; mothers over 39 years are excluded from this graph due to unreliable rates.

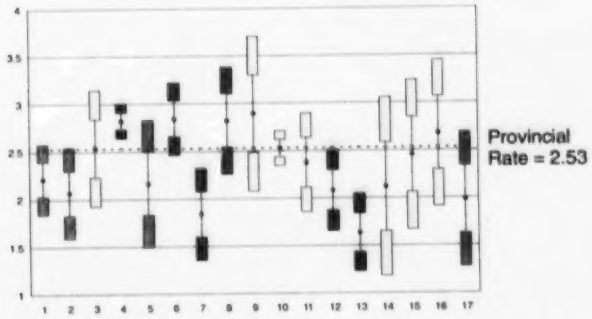
Figure 11
Multiple Birth Rate by Maternal Age, Alberta, 1998

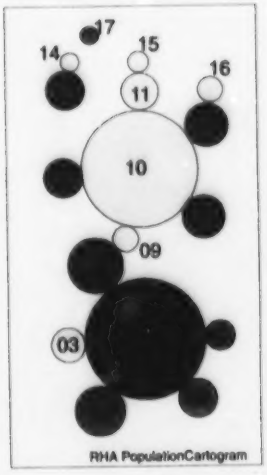


- Multiple births are much more likely to be low birth weight or pre-term than singleton births (see Table A28).
  - Of singleton births in 1998, 4.9% were low birth weight, while 53.4% of multiple births were low birth weight.
    - The average birth weight for singleton births was 3,404 grams, while the average for multiple births was 2,361 grams.

Map 6. Multiple Birth Rate (per 100 live births) by Residence RHA, Alberta,1996, 1997and 1998 combined







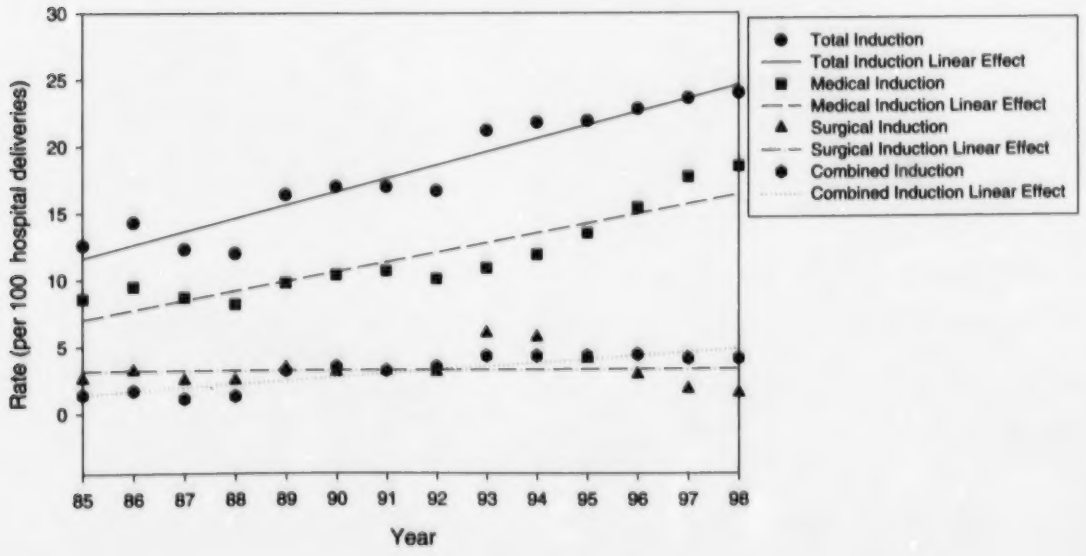
- Of singleton births in 1998, 6.3% were pre-term, while 53.3% of multiple births were pre-term.
  - The average gestational age for single births was 39.1 weeks, while the average for multiple births was 37.4 weeks.
- Stillbirth rates are higher for multiple births than for singleton births (see Table A28)
  - 0.6% of all births were stillbirths between 1985 and 1997. Of singleton births, 0.6% were stillbirths, while 2.2% of multiple births were stillbirths. Thus stillbirths are almost four times as likely in multiple births as in singleton births.

Deliveries

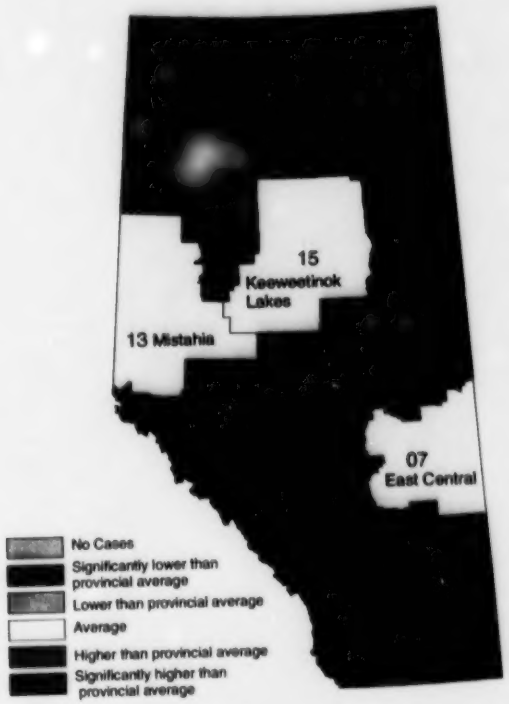
Type of Labour

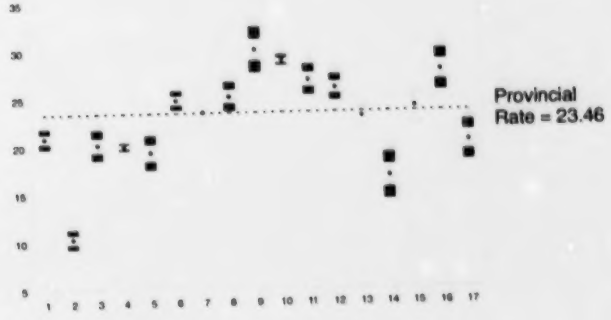
- Medical induction includes induction with oxytocin and prostaglandins. Surgical induction includes artificial rupture of membranes and induction by cervical dilation.
- The large increase in total induction rates (per 100 hospital deliveries) from 1985 to 1998 is due to a doubling of medical induction rates over the last 14 years (see Table A29 and Figure 12). The medical induction rate stood at 18.5 in 1998, up from 8.6 in 1985.
  - Surgical induction rates do not show a consistent time trend; 1.5% of hospital deliveries involved surgical induction in 1998.
  - Combined induction rates have risen, from less than 2.0% in the 1980's to 4.1% in 1998.
- There are regional differences in induction rates. See Table A30 for induction rates by residence RHA for 1996 to 1998.
  - When the data for 1996 to 1998 are combined, RHA's 6, 8, 9, 10, 11, 12, and 16 have higher induction rates than the provincial average, while RHA's 1, 2, 3, 4, 5, 14, and 17 have lower than average rates (see Map 7. For mapping methodologies, see Appendix 4).

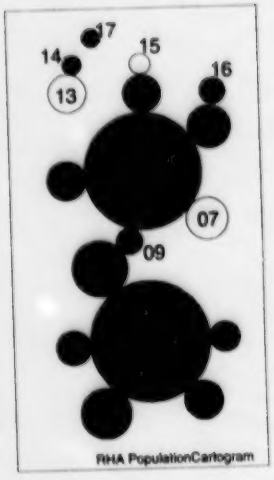
Figure 12
Induction Rates, Alberta



Map 7. Total Induction Rate (per 100 hospital deliveries) by Residence RHA, Alberta, 1996, 1997and 1998 combined



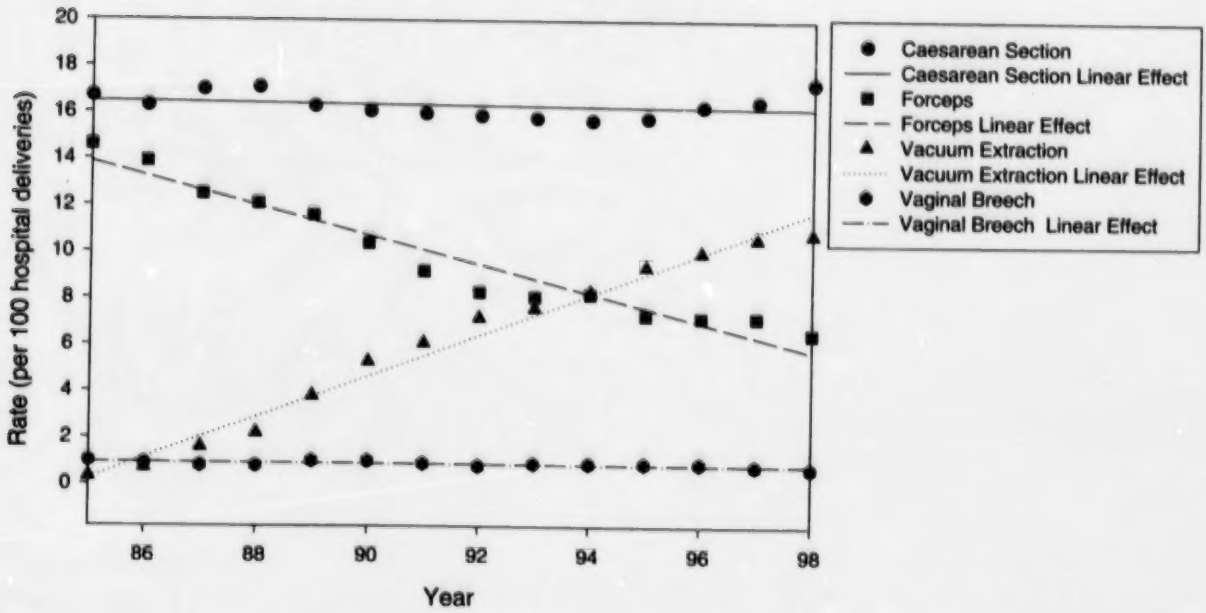




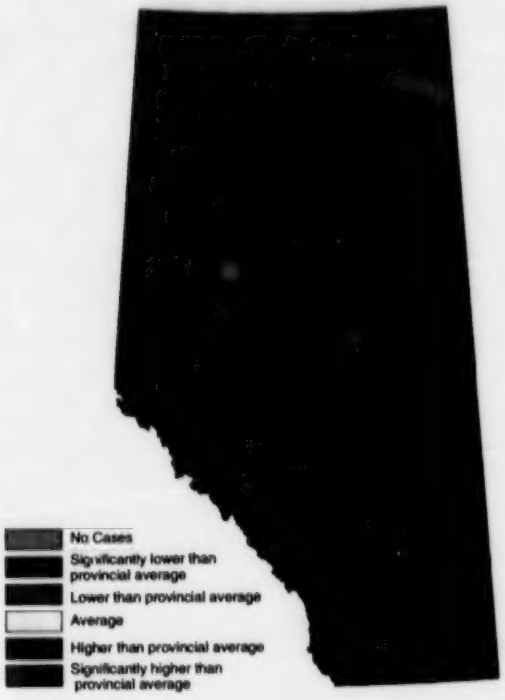
Method of Delivery

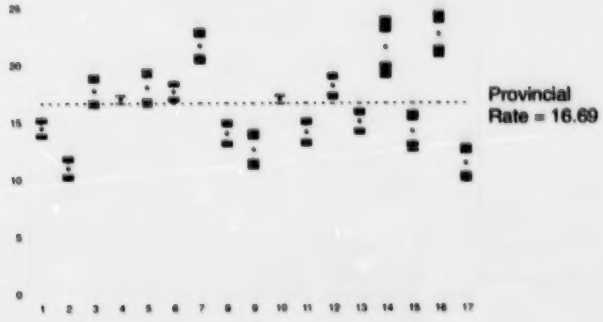
- Rates for caesarean section, forceps, vacuum extraction, and vaginal breech deliveries are shown in Figure 13.
- After decreasing in the early to mid 1990's, caesarean rates have begun to increase. The caesarean rate for 1998 was 17.3 (per 100 hospital deliveries; see Table A31).
  - Operative delivery rates vary with region (see Table A32). When data for 1996 to 1998 are combined, caesarean rates are found to be higher than the provincial average in RHA's 6, 7, 12, 14, and 16 (see Map 8. For mapping methodologies, see Appendix 4).
  - Table A33 provides detailed data for caesarean sections in 1997.
    - 63.7% of caesarean sections were primary caesarean sections.
    - Labour was attempted in 56.5% of mothers who had had previous caesarean sections. 68.7% of these attempted vaginal births after caesarean sections (VBAC's) were successful.
    - Table A34 shows that there is little change over time in caesarean or VBAC rates from 1992 to 1997.
- Time trends for forceps and vacuum extraction methods are complementary: While forceps rates have steadily declined, vacuum extraction has become more common (see Table A31).
  - In 1998, 6.5% of deliveries were by forceps and 10.8% by vacuum extraction.
  - The total of 17.3% for either forceps or vacuum extraction in 1998 is part of an increasing linear trend; the total for 1985 was 14.9%.

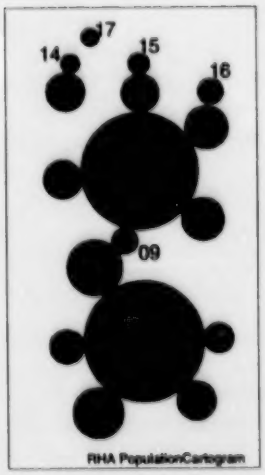
Figure 13
Method of Delivery Rates, Alberta



Map 8. Caesarean Section Rate (per 100 hospital deliveries) by Residence RHA, Alberta, 1996, 1997and 1998 combined





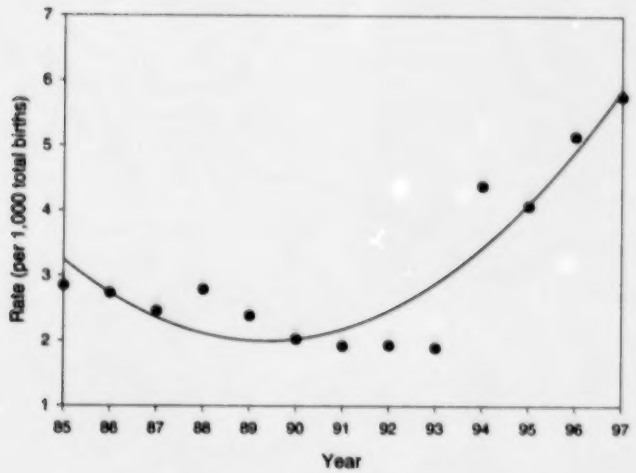


- As shown in Table A32, forceps and vacuum extraction rates are not the same in all health RHA's. Using combined data for 1996 to 1998, it can be seen that forceps rates are higher than the provincial average in RHA's 4, 10, and 16. Forceps rates are lower than average in RHA's 1, 2, 6, 8, 9, 11, 12, 13, 14, 15, and 17.
  - Vacuum extraction rates are higher than the provincial average in RHA's 4, 8, 10, and 12, and lower in RHA's 1, 6, 7, 13, 14, 15, and 16.
- Vaginal breech delivery rates have remained at or just below 1.0% over the last 14 years. In 1998, 0.7% of hospital deliveries were vaginal breech deliveries.

Out-of-Hospital Births

- These include both planned at home births, and unplanned out-of-hospital births.
- In 1997, there were 212 home births in Alberta. Rate (per 1,000 total births) of planned home births from 1985 to 1997 follows a significant quadratic trend, with an increase evident from 1994 (see Table A35 and Figure 14).

Figure 14
Planned Home Birth Rate, Alberta

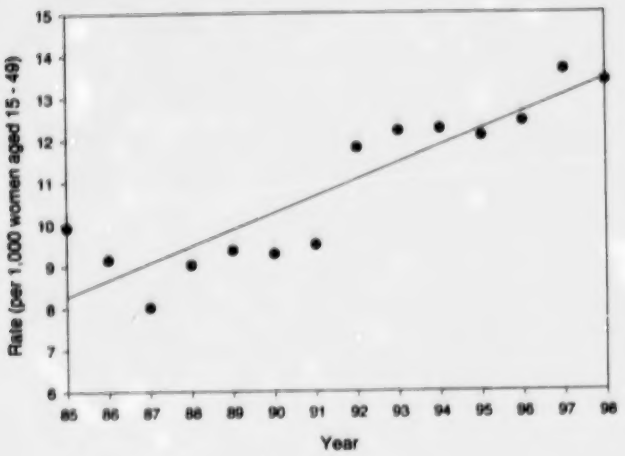


- There were 45 unplanned out-of-hospital births in 1997; there is no significant time trend in the number of unplanned out-of-hospital births.
- These data were collected prior to the registration of midwives in July, 1998. The effect of midwifery on planned home birth will be monitored in future reports.

Induced Abortions

- These are pregnancies terminated by artificial induction.
- Induced abortion rates have increased from 9.9 (per 1,000 women between 15 and 49) in 1985 to 13.4 in 1998 (see Table A1 and Figure 15).
- The age-specific induced abortion rate (per 1,000 women in each age group) increased from 1985 to 1998 for all age groups between 15 and 44 years (see Table A36). There was no significant trend for women younger than 15 or older than 44 years.
  - The highest induced abortion rates are for women aged 18 to 24 years.

Figure 15
Induced Abortion Rates, Alberta



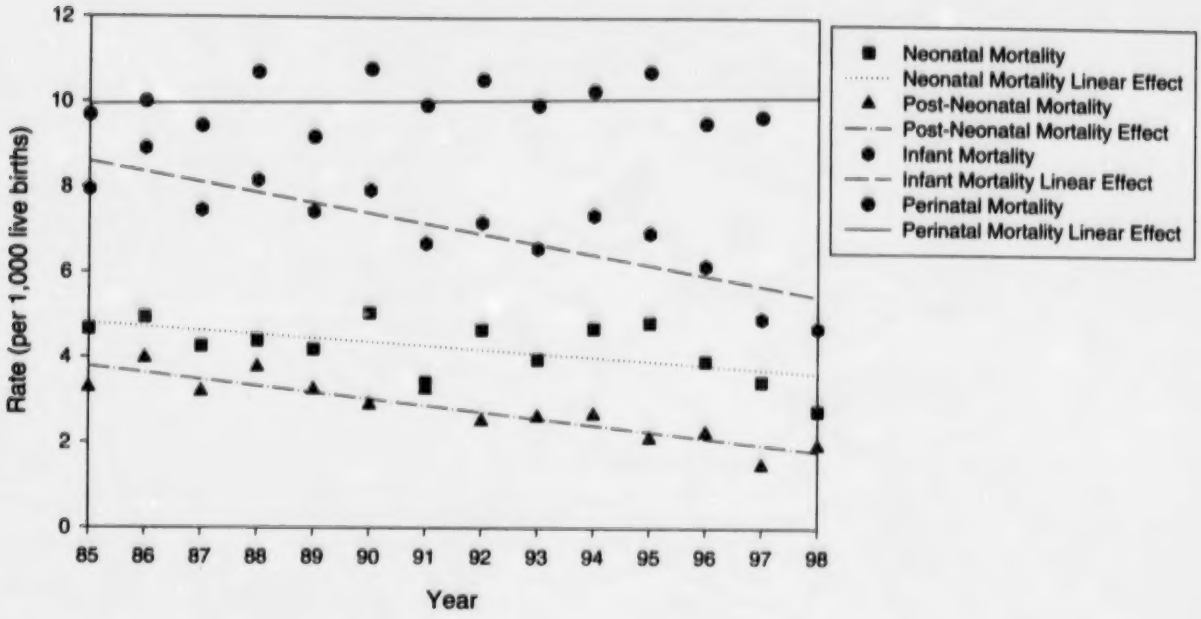
- Private abortion clinics opened in Alberta in 1991.
  - In 1996, private abortion clinics became fully funded by RHA's, and an increase in the percentage of abortions performed in clinics is evident from 1996 (see Table A37).
  - In 1998, 41.5% of induced abortions were performed in private clinics.
- The majority of induced abortions are performed in Edmonton and Calgary (54.8% and 41.5% of the total number in 1998, respectively; see Table A38); 3.7% of induced abortions occurred in rural hospitals in 1998.
- Induced abortions and induced abortion rates by residence RHA appear in Table A2.
- 91% of induced abortions occur prior to 13 weeks gestation (see Table A39).
  - Private clinics perform a higher proportion of their abortions between 13 and 16 weeks gestation than do hospitals, though this proportion has been decreasing over time (see Table A40).

Mortality

Perinatal Mortality

- Perinatal mortality includes stillbirths and early neonatal deaths (deaths before seven days of age).
- There is no significant time trend in the perinatal mortality rate in Alberta from 1985 to 1997 (see Table A1 and Figure 16). The rate for 1997 was 9.7 (per 1,000 total births). 1998 figures are not available due to the unavailability of the 1998 stillbirth data.
- Perinatal mortality rates by birth weight are provided for 1997 (Table A41) and for 1993 to 1997 combined (Table A42 and Figure 17). Rates decline with increasing birth weight, up to 4,500 grams.
- Perinatal mortality rates by gestational age are provided for 1997 (Table A43) and for 1993-1997 combined (Table A44 and Figure 18). Perinatal mortality rates decline consistently with increasing gestational age up to 41 weeks
- Table A45 provides perinatal mortality rates by maternal age for 1997. Mothers in the 18-39 years age group had the lowest perinatal mortality rates.
- Perinatal mortality rates by RHA for 1997 for infants with birth weights over 500 grams are provided in Table A46.

Figure 16
Neonatal, Post-Neonatal, and
Infant Mortality Rates (per 1,000 live births),
and Perinatal Mortality Rates (per 1,000 total births), Alberta



- Perinatal mortality rates by level of hospital for 1997 for infants with birth weights over 500 grams are provided in Table A47 (for definition of level of hospitals see SOGC, 1996).
- Table A48 provides detailed information on perinatal deaths for 1997.
  - The perinatal mortality rate for birth weights over 500 g was 7.4; the rate for birth weights over 1,000 g was 4.6. These rates were 5.4 and 3.3, respectively, when corrected for congenital anomalies.

Infant Mortality

- An infant mortality occurs when an infant dies before reaching 12 months of age, which includes neonatal and post-neonatal deaths.
- A neonatal death occurs when an infant dies before reaching 28 days of age and a post-neonatal death occurs when an infant dies between 28 days and one year of age.
- Infant mortalities are more likely to occur with low maternal education, low or high maternal age, low birth weight, and pre-term birth; infant mortality is also more common in males (Chen et al., 1998; Nault, 1997)
- From 1985 to 1996, the infant mortality rate (per 1,000 live births) fluctuated, but there was an overall decrease (see Tables A1 and A49). Over the last two years (1997 and 1998) there has been a dramatic decrease in infant mortality in Alberta, with the 1998 rate falling to 4.7.

Figure 17
Perinatal Mortality Rate (per 1,000 total births)
and Neonatal Mortality Rate (per 1,000 live births)
by Birth Weight, Alberta, 1993 to 1997 combined

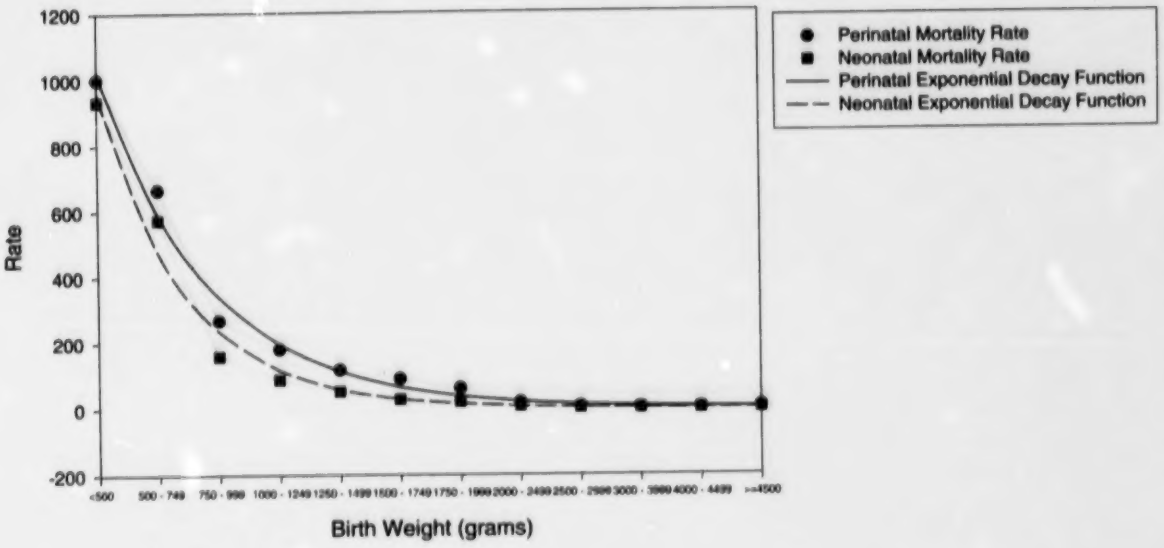
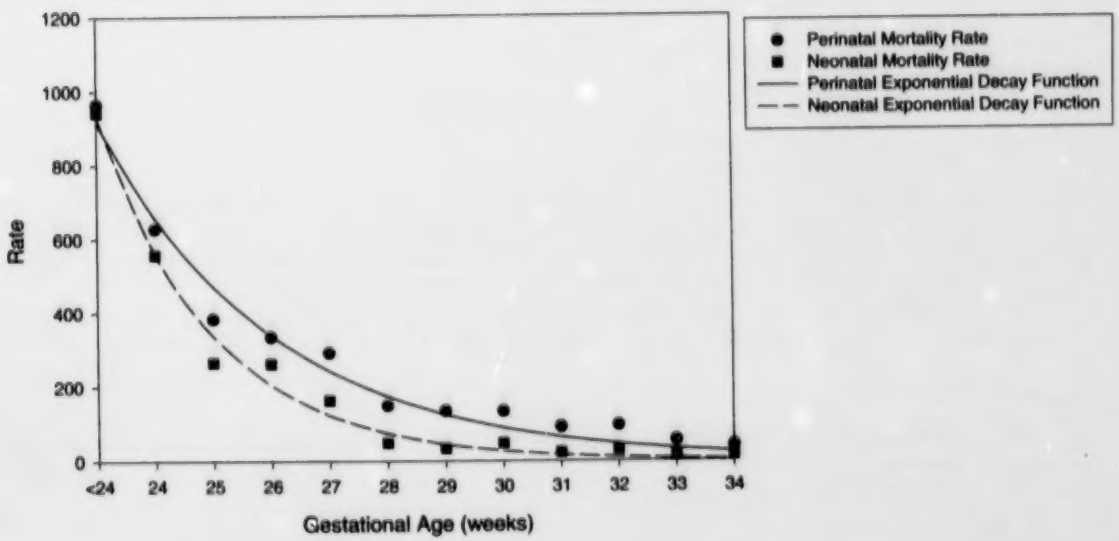
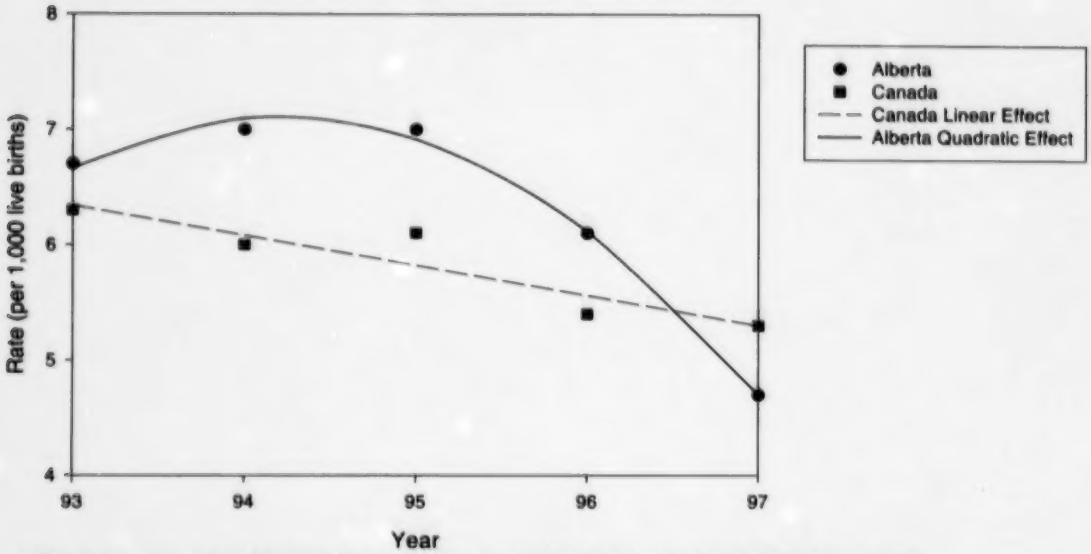


Figure 18
Perinatal Mortality Rate (per 1,000 total births)
and Neonatal Mortality Rate (per 1,000 live births)
by Gestational Age, Alberta, 1993 to 1997 combined



- Figure 19 compares Alberta and Canada infant mortality rates. Alberta has typically had higher infant mortality rates than the Canadian average; however, in 1997 the Alberta rate fell to 4.9, below the Canadian rate of 5.3 (Statistics Canada, 1999e).
  - Figure 16 shows perinatal, infant, neonatal, and post-neonatal mortality rates for 1985 to 1998.

Figure 19*
Infant Mortality, Alberta and Canada



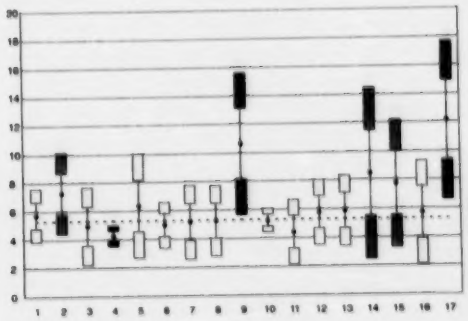
* This figure uses Infant Mortality Rates for Alberta (and Canada) culled from Statistics Canada databases. Data sometimes differ slightly from Alberta Vital Statistics databases, hence the rates appearing in this figure are different from those appearing elsewhere in this report.

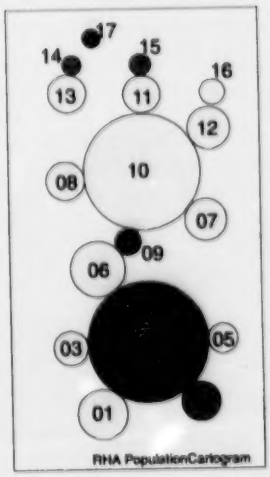
- Numbers of infant mortalities for the RHA's appear in Table A50; rates are not provided due to the low numbers.
  - When the data for 1996 to 1998 are combined, it is evident the infant mortality rates vary across the RHA's (see Table A51).
    - Map 9 shows the rates for residence RHA's. The infant mortality rate was significantly lower than the provincial average in RHA 4, and significantly higher than the provincial average in RHA 17 (For mapping methodologies, see Appendix 4).
    - Facility RHA's: Significantly fewer infant mortalities occur to infants born in RHA's 1, 6, 7, and 12, while the rate is higher than the provincial average in RHA 10.
- Infant mortality rates for males and females from 1985 to 1998 are shown in Table A52.
  - Rates for females are significantly lower than those for males across the 14 years.

Neonatal mortality

- The neonatal mortality rate (per 1,000 live births) has shown a significant linear decrease over the last 14 years (see Tables A1 and A49, and Figure 16). The rate was 4.7 in 1985 and 2.8 in 1998.

Map 9. Infant Mortality (per 1,000 live births) by Residence RHA, Alberta, 1996, 1997and 1998 Combined





- Neonatal mortality rates by birth weight are provided for 1997 (Table A41) and for 1993 to 1997 combined (Table A42 and Figure 17). Rates decline with increasing birth weight.
- Neonatal mortality rates by gestational age are provided for 1997 (Table A43) and for 1993-1997 combined (Table A44 and Figure 18). Neonatal mortality declines with increasing gestational age.
- Table A45 provides neonatal mortality rates by maternal age for 1997. Neonatal mortality rates were highest for mothers younger then 18 years, but these rates must be interpreted with caution due to the low number of neonatal deaths.
- Neonatal mortality rates by RHA for 1997 for infants with birth weights over 500 grams are provided in Table A46.
- Neonatal mortality rates by level of hospital for 1997 for infants with birth weights over 500 grams are provided in Table A47 (for definition of level of hospitals see SOGC, 1996).
- Table A53 provides detailed information on neonatal deaths for 1997.
  - The neonatal mortality rate for birth weights over 500 g was 3.0; the rate for birth weights over 1,000 g was 1.7. These rates were 1.7 and 0.6, respectively, when corrected for congenital anomalies.
- Neonatal mortality rates for 1996 to 1998 combined are in Table A54.

Post-Neonatal mortality

- The post-neonatal mortality rate (per 1,000 live births) has shown a significant decreasing linear trend over the last 14 years (see Tables A1 and A49 and Figure 16). The rate was 7.9 in 1985 and 4.7 in 1998.
- Post-neonatal mortality rates by residence and facility RHA for 1996 to 1998 combined are in Table A51.

Maternal Mortality

- In Alberta, Medical Records Departments in all hospitals report maternal death cases to the Committee on Reproductive Care for review.
- Maternal deaths include direct and indirect obstetric deaths.
  - Direct obstetric death refers to maternal death resulting from complications of pregnancy, childbirth or puerperium including intervention, omission, incorrect treatment, or from a chain of events resulting from any of the above.
  - Indirect obstetric deaths include maternal deaths resulting from previous existing diseases or diseases that developed during pregnancy, childbirth or the puerperium which were not due to direct obstetric cause.
- Both direct and indirect maternal mortality rates have significantly declined over time, and the average direct maternal death rate since 1981 has been 0.5 per 10,000 live births (see Table A54).
- There was one maternal death in 1997, classified as direct

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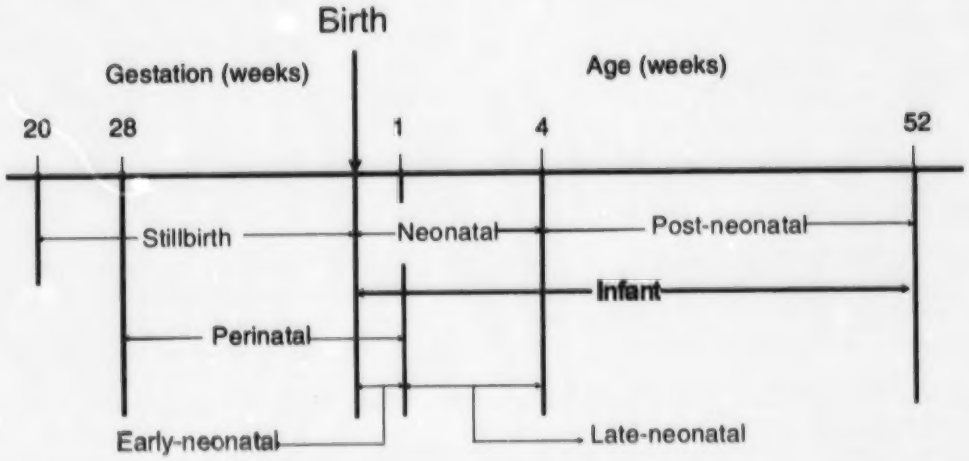
Appendix 1: Definition of Stillbirth and Infant Death



Stillbirth	: at least 20 weeks of gestation or after attaining a weight of 500 g.
Early-neonatal mortality	: deaths occuring before 7th full day after birth.
Perinatal mortality	: stillbirths of at least 28 weeks of gestation and early-neonatal deaths.
Late-neonatal mortality	: deaths between 7th full day and 28th full day of life.
Neonatal mortality	: deaths occuring within 28 days after birth.
Post-neonatal mortality	: deaths between the 4th full week and the 52nd full week.
Infant mortality	: deaths occuring within the first year of life.

Appendix 2: Glossary

age: age at the last birth date preceding the event.(Statistics Canada, Births and Deaths, 1995)

age-specific fertility rate: number of live births per 1,000 women in a specific age group. (Statistics Canada, Births and Deaths, 1995)

abortion: termination of pregnancy before the fetus is viable.
spontaneous: abortion occurring naturally.
induced: abortion brought on intentionally by medication and instrumentation.
(Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health)

antepartum (AP): before the onset of labour.

birth or live birth: the complete expulsion or extraction from the mother, irrespective of the duration of the pregnancy, of a fetus in which, after expulsion or extraction, there is breathing, beating of the heart, pulsation of the umbilical cord or unmistakable movement of voluntary muscle, whether or not the umbilical cord has been cut or the placenta is attached. (Alberta Vital Statistics Act, RSA 1980 cV-4 s1)

birth weight: first weight of the fetus or newborn obtained after birth, expressed in grams. (Statistics Canada, Births and Deaths, 1995). **low birth weight (LBW)**: birth weight is less than 2,500 grams. (Statistics Canada, Births and Deaths, 1995). **very low birth weight (VLBW):** birth weight is less than 1,500 grams. (Statistics Canada, Births and Deaths, 1995). **extreme low birth weight (ELBW)**: birth weight is less than 1,000 grams. (Statistics Canada, Births and Deaths, 1995) **small for gestational age (SGA):** birth weight falls below the tenth percentile of that is appropriate for gestational age. **large for gestational age (LGA):** birth weight falls above the ninetieth percentile of that is appropriate for gestational age.

crude birth rate (CBR): number of live births per 1,000 population. (Statistics Canada, Births and Deaths, 1995)

direct obstetric death: maternal death resulting from complications of pregnancy, childbirth or puerperium including intervention, omission, incorrect treatment or from a chain of events resulting from any of the above.

Facility regional health authority: refers to the regional health authority where the relevant event occurred.

frequency: number of events or cases in a category.

general fertility rate (GFR): total number of live births per 1,000 women aged 15 to 49. (Statistics Canada, Births and Deaths, 1995)

gestation period: interval, in complete weeks, between the first day of the last menstrual period of the mother to the date of removal of fetus from the mother. For cases with unknown date of last normal menses, gestation period is based on clinical estimation. **Pre-term** refers to a period of gestation less than 37 full weeks; **term**, 37 to 42 complete weeks; and **post-term**, more than 42 weeks. (Statistics Canada: Therapeutic Abortions, 1994; Births and Deaths, 1995)

indirect obstetric deaths: maternal death resulting from previous existing disease or diseases that developed during pregnancy, childbirth or the puerperium which was not due to direct obstetric cause.

infant mortality: deaths to children under one year of age. (Statistics Canada: Births and Deaths, 1995)

Intrapartum (IP): during labour.

maternal death: the death of a woman known to be pregnant or within 90 days of delivery or termination of the pregnancy, irrespective of the duration of or site of the pregnancy.

mean: the arithmetic average of a set of observations, the sum of scores divided by the number of scores.

median: the middle value in a set of values that have been arranged in order from highest to lowest.

multiple birth: birth in which more than one infant is born, including live births and stillbirths. (Statistics Canada, Births and Deaths, 1995)

multiple pregnancy: a pregnancy with more than one fetus.

neonatal deaths (NND): death of a live born infant occurring less than 28 full days after birth, including **early neonatal deaths**: before seventh full day or less than 168 hours; and **late neonatal deaths**: between the seventh and 28th full day of life.

perinatal death (PND): includes stillbirths and early neonatal deaths.

rate: the number of events occurring in a population divided by the size of the population.

residence regional health authority: refers to the regional health authority in which the mother resided at the time of the relevant event.

stillbirth: the complete expulsion or the extraction from the mother after at least 20 weeks pregnancy, or after attaining a weight of 500 grams or more, of a fetus in which, after the expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord or unmistakable movement of voluntary muscle. (Alberta Vital Statistics Act, RSA 1980 cV-4 s1)

total births: all live births and stillbirths.

total fertility rate (TFR): average number of children a woman can expect to have in her lifetime, based on the fertility rates of a given year. It is equal to the sum of the age-specific fertility rates (age 15 to 49). (Statistics Canada, Births and Deaths, 1995)

Appendix 3: International Classification of Disease – 9th Revision – Clinical Modification (ICD-9-CM) Codes

(Codes used in data extraction)

Hospital Delivery

Diagnostic Codes	640-648: Complications mainly related to pregnancy
Fifth digit:	1 delivered, with or without mention of antepartum condition
	2 delivered, with mention of postpartum complication
Diagnostic Code	650: Delivery in a completely normal case
Diagnostic Codes	651-659: Other indications for care in pregnancy, labour and delivery
Fifth digit:	1 delivered, with or without mention of antepartum condition
	2 delivered, with mention of postpartum complication
V Code	V27: Outcome of delivery

Induction

Procedure Codes	73.4: Medical induction of labour
	73.01: Induction of labour by artificial rupture of membranes
	73.1: Other surgical induction of labour

Operative Delivery

Procedure Codes	74: Cesarean section and removal of fetus (7491(hysterotomy to terminate pregnancy) was excluded).
	72.0: Low forceps operation
	72.1: Low forceps operation with episiotomy
	72.2: Mid forceps operation
	72.21: Mid forceps with episiotomy
	72.29:Other mid forceps operation
	72.3: High forceps operation
	72.31: High forceps operation with episiotomy
	72.39: Other high forceps operation
	72.7: Vacuum extraction
	72.71: Vacuum extraction with episiotomy
	73.6: Episiotomy
Diagnostic Codes	664.0: First-degree perineal laceration
	664.1: Second-degree perineal laceration
	664.2: Third-degree perineal laceration
	664.3: Fourth-degree perineal laceration
	664.4: Unspecified perineal laceration

Appendix 4: Epidemiologic Measures for Maps

All health events reported in this document are mapped according to the method described below. It was developed to address the issue of how population sizes of health regions can affect rate stability -- specifically, rates will be less stable for RHAs with small populations than those for RHAs with larger populations. The mapping method used in this report is designed to address this issue and allow statistically consistent interpretations. (As an example the numbers shown in the calculations in Steps 1, 2 and 3 below are for low birth weight babies born in the Chinook, Palliser and Northwestern health regions and compared against provincial rates from 1994 to 1996.)

The mapping method consists of the following seven steps:

1. Calculate the rates for each region. For crude rates, an example of this calculation is shown below. *Note: where sex- age standardized rates are used a more detailed calculation would be required.*

Health Region #	Low Birth Weight (LBW)	Total Births	Proportion LBW
1	189	3,453	0.05
2	183	3,069	0.06
.	.	.	.
.	.	.	.
.	.	.	.
17	65	1,557	0.04

2. Calculate the rate for the province. For crude rates, an example of this calculation is shown below. *Note: where sex- age standardized rates are used a more detailed calculation would be required.*

   - Number of low birth weight newborns: 6,726
   - Total number of live births: 113,252
   - Proportion low birth weight: 6,726 / 113,252 = 0.059

3. Calculate standard error of a probability of a health event for each regional rate. For crude rates the formula which follows can be used. *Note: where sex- age standardized rates are used a more detailed calculation would be required.*

$$\sqrt{\frac{p(1-p)}{n}}$$

Where: p is the proportion (estimate of probability) for the region
n is the number of births.

Health Region #	Low Birth Weight	Total Births	Proportion LBW	Calculation	Standard Error
1	189	3,453	0.05	$\sqrt{\frac{0.05(1-0.05)}{3,453}}$	0.0038

2	183	3,069	0.06	$\sqrt{\frac{0.06(1-0.06)}{3,069}}$	0.0037
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
17	65	1,557	0.04	$\sqrt{\frac{0.04(1-0.04)}{1,557}}$	0.0051

4. Calculate the regional-specific standard scores.

   Subtract the regional proportion from the provincial proportion and divide these by the standard score derived for each region in step 3. Repeat for each region.

$$\frac{\text{regional proportion} - \text{provincial proportion}}{\text{regional standard error}}$$

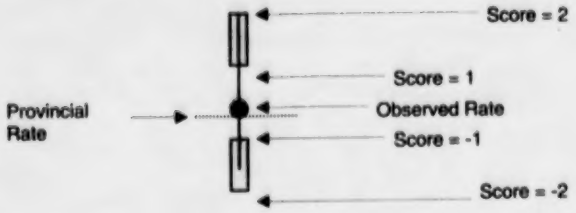
5. Graph the regional-specific standard scores calculated in Step 4.

   The following colour scheme is used to differentiate the rates that may differ from the provincial average.

Score	Interpretation	Colour
> 2	Higher than provincial average (significant difference in a conventional statistical test ($p<0.05$)	Red
1 to 2	probably higher than provincial average ($p > 0.5$ but < 0.95 that difference is not due to random variation)	Orange
1 to –1	Not likely to differ from provincial average ($p< 0.5$ that difference is not due to random variation)	Yellow
-1 to -2	Probably lower than provincial average ($p > 0.5$ but < 0.95 that difference is not due to random variation)	Light green
< -2	Lower than provincial average (significant difference in a conventional statistical test ($p<0.05$)	Dark green

The figure below illustrates how to interpret the graphic for an individual region. The yellow bars are used to show that the provincial rate crosses between the 1 and –1 score range. The table above lists other colour possibilities by score category.

The black dot represents the value of the rate for each region. The colour of the bars above and below the dot represents the score of the region. The portion of the bar closest to the black dot represents the value for a standard score of 1 or –1, while the part of the bars farthest from the dot represent the value for a score of 2 or –2.



6. Generate maps using the same categories for each region as listed in Step 5.

The graph and map are placed in the same page. The map allows the reader to obtain a quick overview while more detailed information is presented on the graph . The colour assigned to each region is based on the colour of the bars in the graph for the same region. This provides a spatial context to the distribution patterns and consistency among the two graphic elements.

7. Generate a cartogram.

A cartogram is similar to a map. However, each region is represented by a circle that is sized proportionately to the regional population. This graphic is useful for interpreting reported rates by providing an indication of the population size of each region. Each RHA in the cartogram is coloured the same as it is on the provincial map.

Appendix 5: List of Tables

Table A1 Selected Indicators of Pregnancy Outcomes, Alberta, 1985-1998
Table A2 Induced Abortions, Induced Abortion Rate, and Stillbirths, by Residence RHA, Alberta, 1986–1998
Table A3 Estimated Pregnancy (live births, stillbirths, and induced abortions) Rates by Age Group, Alberta, 1985-1998
Table A4 Live Births and General Fertility Rates by Residence RHA, Alberta, 1985-1998
Table A5 Live Births by Age Group of Mother, and Age-Specific Fertility Rates, Alberta, 1985-1998
Table A6 Age-Specific Fertility Rates1,2 and Total Fertility Rate by Residence RHA, Alberta, 1996-1998
Table A7 Mean Maternal Age at First Live Birth, Stillbirth and Total Live Birth, Alberta and Canada, 1985-1998
Table A8 Mean Maternal Age by Residence RHA, Alberta, 1996-1998 combined
Table A9 Stillbirths and Stillbirth Rates by Maternal Age Group, Alberta, 1985-1997
Table A10 Stillbirths by Birth Weight Categories, Alberta, 1985-1997
Table A11 Stillbirths by Birth Weight Distribution and Time of Death, Alberta, 1997
Table A12 Live Births by Birth Weight Categories, Alberta, 1985-1998
Table A13 Low Birth Weight Rate for Singleton Term Births, Alberta, 1985–1997
Table A14 Low Birth Weight Pre-Term Births and % Pre-Term Births, Alberta, 1985-1998
Table A15 Low Birth Weight (<2500 grams) Births by Residence and Facility RHA, Alberta, 1985-1998
Table A17 Singleton Birth Small or Large for Gestational Age, High Birth Weight, and Mean Birth Weight, Alberta, 1985–1998
Table A18 Live Singleton Pre-term Birth Rate, Alberta, 1985–1998
Table A19 Low Birth Weight, Pre-term, and High Birth Weight Births by Residence and Facility RHA, Alberta, 1996-1998 combined
Table A20 Pre-term (<37 weeks gestation) Live Births by Residence and Facility RHA, Alberta, 1985-1998
Table A21 Pre-term (<37 weeks gestation) Live Births and Pre-term Live Birth Rate by Age Group of Mother, Alberta, 1985-1998
Table A22 Multiple Pregnancies, Multiple Births and Perinatal Deaths of Multiple Births by Facility RHA's, Alberta, 1997
Table A23 Multiple Pregnancies, Multiple Births and Perinatal Deaths of Multiple Births, Alberta, 1982–1997
Table A24 Twin, Triplet and Quadruplet Births and Percent of Multiple Births, Alberta, 1985-1998
Table A25 Multiple Live Births by Residence and Facility RHA, Alberta, 1985-1998
Table A26 Multiple Birth Rate (per 100 live births) for Residence and Facility RHA, Alberta, 1996-1998 combined
Table A27 Live Multiple Births and Live Multiple Birth Rate by Age Group of Mother, Alberta, 1985-1998
Table A28 Stillbirth Rate, Low Birth Weight Rate and Pre-term Birth Weight of Multiple Births, Alberta, 1985-1998
Table A29 Induction Rates, Alberta, 1985–1998
Table A30 Induction Rates by Residence RHA, Alberta, 1996–1998
Table A31 Operative and Vaginal Breech Deliveries, Alberta, 1985–1998
Table A32 Methods of Delivery by Residence RHA, Alberta, 1996-1998
Table A33 Caesarean Sections, Primary and Repeat Rates, Deaths, Trial of Labour, and Vaginal Births After Caesarean, by Facility RHA, Alberta, 1997
Table A34 Caesarean Section and Vaginal Birth after Caesarean Rates, Alberta, 1992–1997
Table A35 Planned Home Births and Unplanned Out-of-Hospital Births, Alberta, 1985–1997
Table A36 Induced Abortions by Age, and Age-Specific Induced Abortion Rates, Alberta, 1985–199
Table A37 Induced Abortions by Facility Type, Alberta, 1985–1998
Table A38 Induced Abortions by Facility Regions, Alberta, 1985–1998
Table A39 Induced Abortions by Week of Gestation and Age Group, Alberta, 1996–1998
Table A40 Induced Abortions by Week of Gestation and Facility Type, Alberta, 1985–1998
Table A41 Weight Specific Perinatal and Neonatal Mortality, Alberta, 1997

Table A42 Weight Specific Perinatal and Neonatal Mortality, Alberta, 1993-1997 combined
Table A43 Perinatal and Neonatal Mortality Rates by Length of Gestation, Alberta, 1997
Table A44 Perinatal and Neonatal Mortality Rates by Length of Gestation, Alberta,1993-1997 Combined
Table A45 Stillbirths and Neonatal Mortality By Maternal Age (Corrected for Congenital Anomalies), Alberta, 1997
Table A46 Perinatal and Neonatal Statistics1 by Facility RHA, Alberta, 1997
Table A47 Perinatal and Neonatal Statistics1 by Level of Hospital, Alberta, 1997
Table A48 Perinatal and Corrected (for Major Anomalies) Perinatal Mortality Rates by Facility RHA's, Alberta, 1997
Table A48 Perinatal and Corrected (for Major Anomalies) Perinatal Mortality Rates by Facility RHA's, Alberta, 1997
Table A49 Neonatal, Post-neonatal and Infant Mortality Rates, Alberta, 1985-1998
Table A50 Infant Deaths by Residence RHA and Facility RHA, Alberta, 1985-1998.
Table A51 Neonatal, Post-neonatal and Infant Mortality Rates by Residence and Facility RHA, Alberta, 1996-1998 combined
Table A52 Infant mortality rates by gender, Alberta, 1985–1998
Table A53 Neonatal and Corrected (for Major Anomalies) Neonatal Mortality Rates by Facility RHA's, Alberta, 1997
Table A54 Maternal Mortality Totals and Rates, Alberta, 1961-1997

Table A1 Selected Indicators of Pregnancy Outcomes, Alberta, 1985-1998

Indicator	Year													
	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Live Births	43,327	43,323	41,722	41,683	42,985	42,634	42,371	41,673	39,906	39,459	38,529	37,476	36,551	37,609
Crude Birth Rate (per 1,000 population)	18.5	17.7	16.9	16.7	17.0	16.5	16.2	15.7	14.9	14.6	14.2	13.7	13.1	13.2
General Fertility Rate (per 1,000 women aged 15-49)	66.1	63.6	61.2	60.6	61.9	60.3	59.1	57.5	54.6	53.7	52.2	50.3	48.3	48.6
Total Fertility Rate (per 1,000 women)	1,887	1,830	1,793	1,807	1,876	1,861	1,861	1,843	1,790	1,805	1,793	1,757	1,708	1,730
Low Birth Weight Rate (per 100 live births)	5.4	5.5	5.5	5.8	5.9	5.9	5.8	5.8	5.7	5.6	6.0	6.1	6.2	6.2
Small for Gestational Age Rate (per 100 live singleton births)	11.1	10.7	10.5	10.3	10.4	10.2	10.1	9.6	9.6	9.3	9.7	9.0	9.3	8.9
Large for Gestational Age Rate (per 100 live singleton births)	9.7	9.8	9.8	9.9	9.7	10.1	9.9	10.9	10.3	10.4	10.5	11.2	10.7	11.7
High Birth Weight Rate (per 100 live births)	10.8	11.1	10.9	10.7	10.9	11.1	11.0	11.4	11.5	11.4	11.3	11.6	11.4	12.3
Pre-Term Birth Rate (per 100 live births)	6.5	6.3	6.4	6.9	6.6	6.9	6.6	6.8	6.6	6.8	7.0	7.4	7.3	7.5
Multiple Birth Rate (per 100 live births)	2.0	1.9	2.1	2.0	2.1	2.0	2.1	2.3	2.2	2.2	2.3	2.4	2.5	2.7
Stillbirths	255	268	253	297	254	296	310	277	267	266	261	236	248	*
Stillbirth Rate (per 1,000 total births)	5.9	6.1	6.0	7.1	5.9	6.9	7.3	6.6	6.6	6.7	6.7	6.3	6.7	*
Induced Abortions	6,499	6,237	5,465	6,203	6,502	6,559	6,803	6,552	8,905	8,983	8,906	9,240	10,313	10,346
Induced Abortion Rate (per 1,000 women aged 15-49)	9.9	9.2	8.0	9.0	9.4	9.3	9.5	11.8	12.2	12.2	12.1	12.4	13.6	13.4
Estimated Pregnancies[1]	50,081	49,828	47,440	48,183	49,741	49,469	49,484	50,502	49,078	48,708	47,696	46,952	47,112	*
Estimated Pregnancy Rate (per 1,000 women aged 15-49)	76.5	73.1	69.6	70.1	71.6	70.0	69.0	69.6	67.1	66.3	64.6	63.1	62.3	*
Mean Maternal Age at Delivery	26.5	26.7	26.9	27.0	27.2	27.3	27.3	27.5	27.6	27.7	27.8	28.0	28.1	28.1
Perinatal Mortality rate (per 1,000 total births)	9.7	10.0	9.4	10.7	9.2	10.8	9.9	10.5	9.9	10.3	10.7	9.5	9.7	*
Neonatal Mortality Rate (per 1,000 live births)	4.7	4.9	4.3	4.4	4.2	5.0	3.4	4.7	4.0	4.7	4.8	3.9	3.4	2.8
Post-Neonatal Mortality Rate (per 1,000 live births)	3.3	4.0	3.2	3.8	3.2	2.9	3.3	2.5	2.6	2.7	2.1	2.2	1.5	1.9
Infant Mortality Rate (per 1,000 live births)	7.9	8.9	7.5	8.2	7.4	7.9	6.7	7.2	6.6	7.3	6.9	6.2	4.9	4.7
Total Induction Rate (per 100 hospital deliveries)	12.6	14.3	12.3	12.0	16.4	17.0	17.0	16.7	21.2	21.8	21.9	22.6	23.6	24.0
Caesarean Section Rate (per 100 hospital deliveries)	16.7	16.3	17.0	17.1	16.3	16.1	16.0	15.9	15.8	15.7	15.8	16.3	16.5	17.3

Sources:

Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Vital Statistics, Death File, Department of Government Services, April 1999 release.
Clinics Files, Alberta Health and Wellness.
Fee-for-Services Claims Files, Alberta Health and Wellness.
Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness.

Notes:

1. Estimated pregnancies include livebirths, stillbirths, and induced abortions.
2. * indicates data is not available.

Table A2 Induced Abortions, Induced Abortion Rate, and Stillbirths, by Residence RHA, Alberta, 1986-1998

RHA	Year												
	86	87	88	89	90	91	92	93	94	95	96	97	98
Induced abortions													
1	246	234	217	237	209	216	264	260	270	291	289	321	259
2	141	134	138	129	102	99	138	154	132	132	177	198	182
3	149	137	153	161	165	154	220	231	233	229	234	246	240
4	2,609	2,504	2,486	2,613	2,754	2,665	3,323	3,448	3,495	3,434	3,556	3,875	3,953
5	78	68	85	62	72	69	87	114	113	96	116	118	127
6	329	309	348	337	256	293	412	387	423	402	442	453	469
7	93	67	81	85	74	89	116	145	160	170	148	175	177
8	95	72	115	118	144	158	189	190	180	183	220	240	265
9	47	33	37	54	54	47	52	64	75	77	76	91	95
10	1,662	1,181	1,742	1,972	1,990	2,224	2,749	2,925	2,847	2,784	2,854	3,254	3,144
11	77	47	89	88	74	114	133	153	144	134	142	167	177
12	108	96	117	116	107	140	189	192	197	205	189	233	230
13	216	204	205	161	179	173	197	198	207	211	236	248	249
14	11	8	7	25	23	32	31	47	34	41	47	44	34
15	50	63	56	58	67	41	60	55	79	67	70	75	66
16	93	70	84	73	83	97	102	108	119	102	137	137	122
17	17	16	11	16	19	18	15	42	21	24	44	28	34
Unknown	41	41	54	35	45	35	30	19	24	111	139	61	16
Alberta	**6,062**	**5,264**	**6,025**	**6,340**	**6,417**	**6,664**	**8,307**	**8,730**	**8,753**	**8,693**	**9,116**	**9,964**	**9,839**
Induced abortion rate (per 1,000 women aged 15-49)													
1	7.2	6.8	6.3	6.9	6.0	6.1	7.4	7.3	7.5	8.0	8.0	8.8	7.1
2	6.9	6.6	6.8	6.3	5.0	4.8	6.7	7.4	6.2	6.1	8.1	8.9	8.0
3	10.9	9.8	10.7	11.1	11.0	9.9	13.8	14.0	13.6	13.0	12.9	13.1	12.4
4	12.6	12.0	11.7	12.1	12.5	11.9	14.6	15.1	15.2	14.7	15.0	15.9	15.6
5	7.0	6.1	7.6	5.5	6.3	6.0	7.4	9.4	9.2	7.6	9.1	9.2	9.6
6	8.0	7.5	8.4	8.0	6.0	6.7	9.3	8.6	9.4	8.8	9.6	9.7	9.7
7	3.8	2.8	3.4	3.6	3.1	3.7	4.8	6.0	6.5	6.9	5.9	7.0	7.0
8	4.9	3.7	5.8	5.9	7.0	7.5	8.7	8.7	8.1	7.9	9.4	10.1	11.0
9	5.4	3.8	4.2	6.0	5.9	5.0	5.4	6.7	7.8	8.0	7.8	9.3	9.5
10	8.0	5.6	8.3	9.3	9.2	10.2	12.5	13.2	12.9	12.8	13.2	15.0	14.3
11	4.2	2.6	4.9	4.8	3.9	5.9	6.8	7.6	7.1	6.6	7.0	8.2	8.6
12	4.1	3.7	4.5	4.4	4.1	5.3	7.1	7.2	7.4	7.7	7.1	8.7	8.5
13	9.2	8.7	8.8	7.5	8.4	8.0	9.1	9.2	9.6	9.5	10.3	10.6	10.3
14	4.0	3.0	2.6	5.6	4.3	6.1	6.0	9.2	6.6	8.0	9.2	8.7	6.7
15	9.1	11.3	9.8	10.1	11.5	6.9	9.9	9.0	12.6	10.3	10.7	11.2	9.8
16	7.6	6.1	7.4	6.4	7.2	8.3	8.7	9.3	10.4	9.1	12.2	11.7	10.0
17	4.6	4.3	2.9	4.1	4.9	4.6	3.8	10.3	5.0	5.6	9.9	5.9	6.9
Alberta	**8.9**	**7.7**	**8.8**	**9.1**	**9.1**	**9.3**	**11.5**	**11.9**	**11.9**	**11.8**	**12.2**	**13.2**	**12.7**
Stillbirths													
1	17	17	21	11	12	22	22	19	16	20	15	9	
2	9	8	8	6	14	4	6	7	7	12	8	9	
3	6	6	4	5	3	4	3	3	6	6	10	3	
4	80	72	66	72	71	88	81	69	87	64	71	79	
5	5	7	5	7	6	4	9	5	8	3		4	
6	14	8	20	9	17	29	16	23	18	22	15	19	
7	17	9	4	11	6	8	8	6	9	5	7	12	
8	7	7	6	8	9	5	11	7	4	6	7	9	
9	7	6	6	4	7	4	4	1	2	3	2	5	
10	68	68	94	75	92	97	70	81	62	63	59	56	
11	5	11	11	4	13	7	12	7	11	12	6	8	
12	6	10	18	14	13	13	9	13	6	14	13	8	
13	7	8	15	10	16	10	12	4	16	16	10	10	
14	6	4	2	5	3	2	3	2	1	1	2	3	
15	5	4	8	3	5	6	4	6	6	2	3	7	
16	5	2	8	4	5	3	3	5	4	4	3	5	
17	4	6	1	6	4	4	4	9	3	8	5	2	
Alberta	**268**	**253**	**297**	**254**	**296**	**310**	**277**	**267**	**268**	**261**	**236**	**248**	

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Fee-for-Service Claims Files, Alberta Health and Wellness.

Note: RHA boundaries are current as of 1998.
Stillbirth data for 1998 are not available at the time of reporting.

Table A3 Estimated Pregnancy (live births, stillbirths, and induced abortions) Rates by Age Group, Alberta, 1985-1998

Year	Total	Age Group										
		<15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	>44	Unknown
Estimated pregnancies[1]												
85	**50,082**	95	1,674	3,017	4,691	14,432	18,440	9,586	2,481	336	21	0
86	**49,829**	65	1,684	2,937	4,621	13,687	18,187	10,306	2,640	308	15	0
87	**47,440**	78	1,542	2,878	4,420	12,153	17,356	10,337	2,729	351	16	0
88	**48,183**	68	1,535	3,050	4,585	11,815	17,459	10,794	3,000	449	13	0
89	**49,742**	88	1,535	3,092	4,627	11,784	17,657	11,764	3,363	432	27	0
90	**49,489**	80	1,577	3,127	4,704	11,558	17,037	11,900	3,706	488	16	0
91	**49,484**	95	1,732	3,166	4,898	11,524	16,344	12,071	4,005	522	25	0
92	**50,502**	129	1,976	3,197	5,173	11,711	16,019	12,663	4,227	564	14	2
93	**49,078**	99	1,982	3,121	5,103	11,511	15,055	12,312	4,387	585	25	1
94	**48,710**	97	1,864	3,265	5,129	11,072	14,778	12,391	4,557	667	19	0
95	**47,697**	97	1,827	3,207	5,034	10,888	14,093	12,175	4,708	679	23	0
96	**46,951**	69	1,770	3,039	4,809	10,500	13,861	11,878	5,011	792	31	0
97	**47,112**	75	1,752	3,103	4,855	10,684	13,848	11,512	5,175	941	22	0
Estimated pregnancy rate (per 1000 women in each age group)[2,3]												
	15-49	<15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	>44	
85	**76.5**	1.1	31.3	80.8	51.7	122.2	144.3	88.3	27.6	5.1	0.4	
86	**73.1**	0.7	30.5	77.0	49.5	115.9	137.7	89.0	27.6	4.4	0.3	
87	**69.6**	0.9	28.4	76.2	48.0	108.9	133.5	87.2	28.5	4.6	0.3	
88	**70.1**	0.8	29.0	79.4	50.1	110.7	135.8	88.9	30.5	5.6	0.2	
89	**71.6**	1.0	29.5	80.4	51.1	115.0	139.0	94.8	32.8	5.1	0.4	
90	**70.0**	0.9	30.0	83.4	52.2	114.2	136.3	93.5	34.3	5.5	0.2	
91	**69.0**	1.0	32.6	86.7	54.6	114.6	135.0	93.4	35.3	5.6	0.4	
92	**69.6**	1.3	36.4	88.6	57.2	118.3	137.5	96.9	35.8	5.9	0.2	
93	**67.1**	1.0	36.2	86.3	56.1	117.8	135.4	94.0	36.0	5.9	0.3	
94	**66.3**	1.0	33.5	89.5	55.7	116.2	139.4	95.8	36.6	6.5	0.2	
95	**64.6**	0.9	32.5	86.5	53.9	116.2	137.4	96.7	37.1	6.3	0.3	
96	**63.1**	0.7	30.5	81.3	50.4	113.0	136.8	97.9	39.0	7.0	0.3	
97	**62.3**	0.7	29.2	81.4	49.4	112.4	136.1	97.9	39.5	8.0	0.2	

Sources: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Clinics Files, Alberta Health and Wellness.
Fee-for-Services Claims Files, Alberta Health and Wellness.
Alberta Health Care Insurance Plan Registration File, Alberta Health and Wellness.

Notes: 1. Estimated pregnancies include live births, stillbirths and induced abortions.
2. Age-specific rate refers to number of estimated pregnancies per 1,000 women in a specific age group.
3. The age-specific rates for age groups <15 and >44 are calculated based on female populations in 10-14 and 44-49 age groups respectively.
Populations are estimated at March 31, as viewed at September 30 of each year.
Pregnancies are for Alberta residents only.

Table A4 Live Births and General Fertility Rates by Residence RHA, Alberta, 1985-1998

	Year													
RHA	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Live births														
1	2,491	2,453	2,423	2,320	2,467	2,443	2,354	2,402	2,344	2,323	2,292	2,150	2,243	2,078
2	1,292	1,320	1,185	1,227	1,270	1,274	1,199	1,202	1,146	1,133	1,269	1,161	1,183	1,242
3	835	877	835	824	876	881	872	900	857	892	834	847	910	887
4	12,038	12,059	11,965	11,981	12,642	12,496	12,259	12,148	11,454	11,513	11,271	11,151	11,053	11,602
5	693	718	702	681	662	689	673	675	639	637	668	650	622	625
6	2,824	3,065	2,839	2,758	2,854	2,811	2,875	2,828	2,833	2,620	2,611	2,586	2,499	2,555
7	1,476	1,366	1,356	1,312	1,308	1,283	1,185	1,150	1,170	1,191	1,084	1,058	1,009	1,037
8	1,308	1,239	1,157	1,156	1,206	1,180	1,170	1,231	1,116	1,129	1,227	1,150	1,152	1,139
9	705	700	671	666	684	653	667	702	595	605	613	567	564	564
10	12,530	12,787	12,097	12,391	12,427	12,543	12,626	12,005	11,588	11,139	10,559	10,162	9,547	9,963
11	1,387	1,329	1,272	1,288	1,371	1,274	1,393	1,329	1,277	1,313	1,204	1,191	1,098	1,125
12	1,935	1,817	1,803	1,698	1,782	1,706	1,701	1,724	1,680	1,630	1,565	1,503	1,496	1,523
13	1,590	1,446	1,392	1,360	1,378	1,299	1,349	1,324	1,252	1,307	1,330	1,322	1,273	1,327
14	400	394	380	354	348	352	341	331	312	329	330	331	294	320
15	498	518	513	481	552	511	539	550	542	592	545	529	500	521
16	893	773	683	744	701	764	672	670	633	577	574	599	568	590
17	430	460	444	442	457	475	496	502	467	529	553	518	539	508
Unknown	2	2	5	0	0	0	0	0	1	0	0	1	1	3
Alberta	**43,327**	**43,323**	**41,722**	**41,683**	**42,985**	**42,634**	**42,371**	**41,673**	**39,906**	**39,459**	**38,529**	**37,476**	**36,551**	**37,609**
General fertility rate (per 1000 women aged 15-49)[1]														
1	74.1	71.6	70.4	67.3	71.6	70.0	66.8	67.6	65.7	64.7	63.4	59.2	61.4	56.7
2	65.2	64.5	58.3	60.3	62.4	62.0	58.0	58.2	55.2	53.4	59.0	52.9	53.2	54.6
3	62.6	64.2	60.0	57.7	60.2	58.5	56.2	56.3	51.8	52.2	47.4	46.5	48.5	46.0
4	60.9	58.1	57.5	56.6	58.7	56.6	54.6	53.5	50.1	50.0	48.3	46.9	45.2	45.7
5	62.5	64.0	62.9	61.0	59.2	60.6	58.2	57.0	52.9	51.9	53.2	51.1	48.5	47.4
6	71.3	74.2	68.7	66.3	67.8	65.5	66.0	63.8	63.2	58.0	57.1	55.9	53.3	52.7
7	61.6	55.9	56.3	55.0	55.1	54.2	49.7	47.6	48.0	48.3	43.8	42.4	40.2	40.8
8	68.3	63.3	59.4	58.7	60.0	57.6	55.4	56.8	51.0	50.8	53.2	49.0	48.4	47.1
9	84.0	80.3	76.3	75.4	76.2	71.6	70.9	73.5	62.0	62.9	63.6	58.4	57.4	56.5
10	62.8	61.5	57.8	59.0	58.7	58.3	58.0	54.6	52.3	50.6	48.5	47.0	43.9	45.3
11	78.3	73.3	70.4	70.4	74.2	67.5	72.5	67.6	63.8	64.5	59.3	58.5	53.9	54.8
12	76.0	69.0	69.2	64.8	67.7	65.0	64.6	64.9	62.9	61.0	58.9	56.8	56.1	56.3
13[2]	-	-	-	-	63.8	60.9	62.7	61.3	58.6	60.8	59.9	57.8	54.6	55.1
14[2]	-	-	-	-	77.4	66.5	65.2	63.8	60.9	63.6	64.2	64.6	57.9	63.0
15	97.6	93.9	91.8	83.8	96.2	87.3	90.5	91.1	88.3	94.1	84.2	80.8	75.0	77.4
16	75.3	63.4	59.8	65.9	61.3	66.4	57.5	57.0	54.4	50.6	51.3	53.5	48.5	48.5
17	124.0	123.4	118.3	115.6	117.7	123.6	125.8	126.0	114.5	126.6	128.8	116.9	114.3	103.4
Alberta	**66.1**	**63.6**	**61.2**	**60.6**	**61.9**	**60.3**	**59.1**	**57.5**	**54.6**	**53.7**	**52.2**	**50.3**	**48.3**	**48.6**

Sources: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Alberta Health Care Insurance Plan Registration File, Alberta Health and Wellness.

Notes: 1. General fertility rate (GFR) refers to total number of live births per 1,000 women aged 15-49.
2. Population estimations for regions 13 and 14 are not available for years 1985 through 1989.
The populations are estimated at March 31, as viewed at September 30 of each year.
Regional Health Authority boundaries are current as of April, 1998
Births are for Alberta residents only.

Table A5 Live Births by Age Group of Mother, and Age-Specific Fertility Rates, Alberta, 1985-1998

Year	Total	Age group (years) <15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	>44	Unknown
Live births												
85	**43,327**	36	1,021	2,064	3,085	12,128	16,932	8,778	2,108	250	10	0
86	**43,323**	26	1,065	2,068	3,133	11,417	16,777	9,483	2,267	211	9	0
87	**41,722**	34	995	2,036	3,031	10,306	16,054	9,613	2,418	258	8	0
88	**41,683**	34	957	2,045	3,002	9,733	15,973	9,973	2,621	339	8	0
89	**42,985**	34	1,017	2,112	3,129	9,661	16,063	10,845	2,926	312	15	0
90	**42,634**	36	1,052	2,206	3,258	9,351	15,524	10,875	3,228	352	10	0
91	**42,371**	47	1,141	2,242	3,383	9,283	14,793	10,990	3,468	389	18	0
92	**41,673**	52	1,150	2,082	3,232	8,951	14,090	11,373	3,548	420	5	2
93	**39,906**	36	1,087	1,893	2,980	8,638	13,239	10,952	3,615	428	17	1
94	**39,459**	38	1,021	1,976	2,997	8,205	12,916	10,996	3,814	480	13	0
95	**38,529**	28	1,002	1,985	2,987	8,070	12,221	10,826	3,916	466	15	0
96	**37,476**	31	917	1,770	2,687	7,552	11,854	10,598	4,173	565	16	0
97	**36,551**	28	833	1,705	2,538	7,361	11,690	10,034	4,227	662	11	0
98	**37,609**	25	858	1,732	2,590	7,731	11,726	10,475	4,344	644	24	50
Age-specific fertility rate (per 1000 women in each group)[1,2]												
	TFR[3]											
85	**1,887**	0.4	19.1	55.3	34.0	102.7	132.5	80.8	23.5	3.8	0.2	
86	**1,830**	0.3	19.3	54.2	33.6	96.7	127.0	81.9	23.7	3.0	0.2	
87	**1,793**	0.4	18.6	54.6	32.9	92.3	123.4	81.1	25.2	3.4	0.1	
88	**1,807**	0.4	17.4	53.6	32.8	91.2	124.3	82.2	26.7	4.2	0.1	
89	**1,876**	0.4	18.8	55.9	34.6	94.2	126.5	87.4	28.5	3.7	0.2	
90	**1,861**	0.4	19.8	57.4	36.2	92.4	124.2	85.4	29.9	3.9	0.2	
91	**1,861**	0.5	21.9	58.3	37.7	92.3	122.2	85.0	30.6	4.1	0.3	
92	**1,843**	0.5	21.9	55.6	35.8	90.4	120.9	87.1	30.0	4.4	0.1	
93	**1,790**	0.4	20.5	51.8	32.8	88.4	119.1	83.6	29.6	4.3	0.2	
94	**1,805**	0.4	18.8	54.8	32.6	86.1	121.8	85.0	30.6	4.7	0.2	
95	**1,793**	0.3	18.3	54.9	32.0	86.1	119.2	86.0	30.9	4.3	0.2	
96	**1,757**	0.3	16.5	48.5	28.1	81.3	117.0	87.3	32.5	5.0	0.2	
97	**1,708**	0.3	14.8	46.0	25.8	77.4	114.9	85.4	32.3	5.6	0.1	
98	**1,730**	0.2	14.8	46.3	25.4	78.6	112.6	91.4	32.7	5.2	0.2	

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Alberta Health Care Insurance Plan Registration File, Alberta Health and Wellness

Note:
1. Age-specific fertility rate refers to number of live births per 1,000 women in a specific age group.
2. The age-specific fertility rates for age groups <15 and >44 are calculated based on female populations in 10-14 and 45-49 age groups respectively.
3. Total fertility rate (TFR) refers to average number of children a woman can expect to have in her lifetime, based on the fertility rates of a given year. TFR is equal to the sum of the age-specific fertility rates (aged 15 to 49).

Populations are estimated at June 30, as viewed at December 31 of each year.
Births are for Alberta residents only.

Table A6 Age-Specific Fertility Rates[1,2] and Total Fertility Rate by Residence RHA, Alberta, 1996-1998

RHA	TFR[3]	Age Group <15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	>44
1996											
1	2,113	0.7	21.0	50.0	32.6	104.0	148.3	99.0	32.6	5.7	0.4
2	1,891	0.0	16.0	50.7	29.8	100.2	143.2	77.9	25.1	2.1	0.0
3	1,614	0.0	14.7	42.0	25.6	62.4	106.7	82.3	37.9	7.9	0.0
4	1,589	0.2	11.2	34.3	20.2	60.3	100.9	91.6	38.9	5.6	0.2
5	1,945	0.0	14.8	44.7	26.0	96.4	151.5	86.3	23.9	5.1	0.0
6	1,990	0.4	22.2	65.3	38.4	106.7	136.0	86.5	26.4	3.6	0.2
7	1,572	0.2	10.6	36.4	20.4	79.6	124.0	67.2	19.0	3.8	0.3
8	1,832	1.1	11.1	47.5	24.4	101.1	133.1	74.3	27.6	5.3	0.7
9	2,160	0.0	25.4	87.4	50.0	122.0	149.6	80.6	24.9	4.8	0.0
10	1,615	0.3	12.6	42.2	24.5	68.1	104.8	88.5	31.9	5.0	0.1
11	2,150	0.0	17.8	60.8	33.8	117.5	159.3	82.7	31.3	5.3	0.0
12	2,056	0.4	23.1	57.2	36.3	115.2	152.5	80.9	22.5	3.8	0.0
13	2,003	0.3	22.6	69.2	41.1	118.6	135.1	77.9	25.7	2.2	0.0
14	2,248	1.1	30.8	61.1	42.2	138.9	149.1	83.2	30.8	5.5	0.0
15	2,510	0.0	47.9	110.8	72.8	159.7	152.7	82.9	27.0	6.8	0.0
16	1,902	0.6	29.6	65.4	43.8	90.5	138.6	84.1	20.3	3.0	0.0
17	3,442	1.0	47.5	133.1	81.9	236.2	197.5	105.6	52.3	14.9	0.0
Alberta	**1,757**	**0.3**	**15.8**	**47.3**	**28.1**	**81.3**	**117.0**	**87.3**	**32.5**	**5.0**	**0.2**
1997											
1	2,208	0.5	17.8	63.5	35.3	109.6	153.7	95.7	39.9	7.2	0.2
2	1,940	0.3	14.1	53.4	30.0	98.2	146.8	86.8	22.0	3.7	0.4
3	1,685	0.0	9.7	32.7	18.9	60.4	106.9	101.7	41.3	7.3	0.4
4	1,551	0.1	9.9	33.3	18.9	58.2	97.0	91.3	38.1	6.8	0.1
5	1,882	0.0	9.6	39.8	21.2	90.6	167.0	76.8	18.3	2.5	0.0
6	1,942	0.5	20.3	60.8	35.7	101.7	144.6	75.8	27.3	3.4	0.0
7	1,517	0.2	5.6	28.1	14.3	73.4	127.3	61.7	22.7	3.9	0.0
8	1,826	0.8	12.1	40.9	22.7	85.8	139.4	85.3	28.2	3.7	0.0
9	2,159	0.0	16.0	77.1	39.1	125.7	162.7	75.3	25.8	3.3	0.0
10	1,533	0.3	12.2	38.7	22.7	63.5	100.2	83.1	31.5	5.3	0.2
11	2,011	0.6	11.1	38.5	21.4	103.7	161.5	86.3	23.2	6.1	0.0
12	2,045	0.2	23.9	51.5	35.0	118.8	147.5	77.6	26.7	3.6	0.0
13	1,908	0.3	17.7	52.2	31.1	105.4	138.2	79.1	21.5	6.2	0.0
14	2,051	0.0	28.6	68.0	42.8	139.5	128.9	75.8	19.1	3.9	0.0
15	2,373	0.0	46.1	116.3	73.0	149.0	144.6	82.3	20.9	5.0	0.0
16	1,717	0.6	16.4	79.3	42.2	94.3	103.6	74.2	25.1	3.9	0.0
17	3,404	2.0	62.3	163.3	101.7	198.3	202.0	105.1	58.6	15.0	0.0
Alberta	**1,708**	**0.3**	**13.9**	**44.7**	**25.8**	**77.4**	**114.9**	**85.4**	**32.3**	**5.6**	**0.1**
1998											
1	2,073	0.3	18.5	49.5	30.5	104.0	146.6	97.4	31.5	4.3	0.4
2	1,995	0.3	15.6	48.3	28.3	107.1	140.1	93.7	25.0	4.8	0.0
3	1,634	0.0	11.8	45.3	24.7	64.9	102.0	94.5	35.3	5.3	0.0
4	1,577	0.2	8.5	31.8	17.4	58.7	96.4	97.5	38.7	6.3	0.3
5	1,852	0.0	9.7	35.6	19.5	93.8	145.3	85.3	20.8	5.6	0.0
6	1,935	0.0	17.7	55.2	32.2	100.2	138.0	86.9	26.9	2.6	0.3
7	1,536	0.0	6.4	35.4	17.7	72.3	111.1	79.1	23.8	2.5	0.6
8	1,806	0.5	15.7	46.1	27.2	86.5	132.9	82.9	28.1	3.4	0.3
9	2,138	0.0	16.8	59.0	31.8	115.9	165.2	86.7	23.5	4.5	0.0
10	1,599	0.2	13.2	38.3	23.1	66.9	102.3	88.7	33.2	5.4	0.2
11	2,070	0.0	20.2	53.5	32.7	113.1	151.1	87.1	24.6	5.0	0.4
12	2,062	0.2	18.1	64.8	36.6	106.5	150.5	88.9	26.7	3.2	0.0
13	1,926	0.3	19.9	60.7	35.7	114.0	129.6	76.4	24.4	5.1	0.0
14	2,305	1.1	28.3	91.7	53.0	119.2	167.2	93.1	22.2	6.4	0.0
15	2,456	3.2	48.8	68.1	56.6	159.9	137.1	107.0	27.2	3.6	0.0
16	1,716	0.6	14.4	59.1	32.0	99.6	105.1	79.7	21.5	5.3	0.0
17	3,098	0.9	37.8	143.6	79.5	206.9	169.1	106.0	48.2	10.0	0.0
Alberta	**1,730**	**0.2**	**13.7**	**43.7**	**25.4**	**78.6**	**112.6**	**91.4**	**32.7**	**5.2**	**0.2**

Sources: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Alberta Health Care Insurance Plan Registration File, Alberta Health and Wellness.

Notes:
1. Age-specific fertility rate refers to number of live births per 1,000 women in a specific age group.
2. The age-specific fertility rates for age groups <15 and >44 are calculated based on female populations in 10-14 and 45-49 age groups respectively.
3. Total fertility rate (TFR) refers to average number of children a woman can expect to have in her lifetime, based on the fertility rates of a given year. TFR is equal to the sum of the age-specific fertility rates (aged 15 to 49).

Populations are estimated at March 31, as viewed at September 30 of each year.
Regional Health Authority boundaries are current as of April, 1998
Births are for Alberta residents only.

Table A7 Mean Maternal Age at First Live Birth, Stillbirth and Total Live Birth, Alberta and Canada, 1985-1998

	First Live Birth Alberta	Stillbirth Alberta	Live Birth Alberta	Live Birth Canada
Mean				
85	24.7	26.5	26.5	27.3
86	24.8	26.6	26.7	27.5
87	25.0	26.7	26.9	27.7
88	25.2	26.4	27.1	27.9
89	25.2	27.8	27.2	28
90	25.3	27.4	27.3	28.1
91	25.3	27.0	27.3	28.2
92	25.5	27.2	27.5	28.4
93	25.7	27.7	27.6	28.5
94	25.8	28.3	27.7	28.7
95	25.9	28.3	27.8	28.8
96	26.1	28.5	28.0	*
97	26.2	28.4	28.1	*
98	26.2	*	28.1	*

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release. Statistics Canada, Births and Deaths, 1995.

Note: * indicates that data are not available.

Table A8 Mean Maternal Age by Residence RHA, Alberta, 1996-1998 combined

RHA	Mean Age
1	27.1
2	27.0
3	28.6
4	29.1
5	27.2
6	26.9
7	27.4
8	27.5
9	26.3
10	28.3
11	27.2
12	26.6
13	26.4
14	26.1
15	25.3
16	26.7
17	25.4
Province	**28.1**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Table A9 Stillbirths and Stillbirth Rates by Maternal Age Group, Alberta, 1985-1997

Year	Total	Age group (years) 15-19	20-24	25-29	30-34	35-39	>39
Stillbirths							
85	255	28	60	97	48	19	3
86	268	25	71	89	64	15	4
87	253	36	59	75	61	22	0
88	297	36	67	114	61	17	2
89	254	20	46	96	64	25	3
90	296	24	76	87	73	31	5
91	310	27	86	85	78	29	5
92	277	29	68	80	63	34	3
93	267	26	56	79	70	33	3
94	266	24	54	68	77	35	8
95	261	27	45	77	72	34	6
96	236	21	41	70	60	38	6
97	248	16	51	77	55	45	4
Stillbirths (per 1,000 total births)							
85	5.9	8.9	4.9	5.7	5.4	8.9	
86	6.1	7.9	6.2	5.3	6.7	6.6	
87	6.0	11.6	5.7	4.7	6.3	9.0	
88	7.1	11.7	6.8	7.1	6.1	6.4	
89	5.9	6.3	4.7	5.9	5.9	8.5	
90	6.9	7.2	8.1	5.6	6.7	9.5	
91	7.3	7.8	9.2	5.7	7.0	8.3	
92	6.6	8.8	7.5	5.6	5.5	9.5	
93	6.6	8.5	6.4	5.9	6.4	9.0	
94	6.7	7.8	6.5	5.2	7.0	9.1	
95	6.7	8.9	5.5	6.3	6.6	8.6	
96	6.3	7.7	5.4	5.9	5.6	9.0	
97	6.7	6.2	6.9	6.5	5.5	10.5	

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Notes: Data include Alberta residents only.
Stillbirth data for 1998 are not available.

Table A10 Stillbirths by Birth Weight Categories, Alberta, 1985-1997

YEAR	Birth weight (grams) <500	<1000	<1500	<2500	≥4000	≥4500
Still Births						
85	29	83	110	162	8	3
86	53	101	127	187	6	2
87	51	98	122	180	6	2
88	73	150	177	218	3	1
89	56	115	137	184	2	1
90	68	136	166	219	4	0
91	101	156	188	241	4	0
92	73	117	148	206	3	1
93	68	121	145	188	8	1
94	61	120	140	189	3	1
95	85	130	150	200	6	4
96	69	116	134	173	7	3
97	71	132	152	192	6	3
Low/High Birth Weight Rate (per 100 still births)						
85	11.4	32.5	43.1	63.5	3.1	1.2
86	19.8	37.7	47.4	69.8	2.2	0.7
87	20.2	38.7	48.2	71.1	2.4	0.8
88	24.6	50.5	59.6	73.4	1.0	0.3
89	22.0	45.3	53.9	72.4	0.8	0.4
90	23.0	45.9	56.1	74.0	1.4	0.0
91	32.6	50.3	60.6	77.7	1.3	0.0
92	26.4	42.2	53.4	74.4	1.1	0.4
93	25.5	45.3	54.3	70.4	3.0	0.4
94	22.9	45.1	52.6	71.1	1.1	0.4
95	32.6	49.8	57.5	76.6	2.3	1.5
96	29.2	49.2	56.8	73.3	3.0	1.3
97	28.6	53.2	61.3	77.4	2.4	1.2
Weight Specific Stillbirth Rate (per 100 total births in each weight category)						
85	100.0	33.7	22.7	6.4	0.2	0.4
86	100.0	39.1	26.7	7.3	0.1	0.3
87	100.0	38.9	25.4	7.3	0.1	0.3
88	100.0	49.5	31.6	8.3	0.1	0.2
89	100.0	37.5	25.6	6.8	0.0	0.1
90	61.8	43.3	29.9	8.0	0.1	0.0
91	78.9	49.7	34.0	9.0	0.1	0.0
92	71.6	39.9	27.9	7.8	0.1	0.1
93	68.0	44.5	31.6	7.7	0.2	0.1
94	59.8	40.3	27.8	7.8	0.1	0.2
95	65.9	40.8	28.8	8.0	0.1	0.6
96	66.3	38.7	25.7	7.0	0.2	0.4
97	67.6	45.4	29.2	7.9	0.1	0.5

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A11 Stillbirths by Birth Weight Distribution and Time of Death, Alberta, 1997

Weight (grams)	Antepartum Deaths				Intrapartum Deaths				Stillbirths[2]	Live Births[3]	Ratio: Stillbirths/ Live Births X 1,000
	Prior to Hospital Admission	In Hospital	Total	Total Corrected[1]	Prior to Hospital Admission	In Hospital	Total	Total Corrected[1]			
<500	38	5	43	39	2	33	35	24	78	34	2,294
500 - 749	20	4	24	19	3	22	25	14	49	61	803
750 - 999	8	2	10	8	0	4	4	1	14	64	219
1000 - 1249	10	0	10	8	1	3	4	1	14	104	135
1250 - 1499	5	0	5	3	0	1	1	0	6	105	57
1500 - 1749	13	0	13	10	0	0	0	0	13	136	96
1750 - 1999	7	0	7	5	0	0	0	0	7	295	24
2000 - 2499	16	0	16	16	2	2	4	4	20	1,453	14
2500 - 3999	39	2	41	40	5	5	10	8	51	30,124	2
≥4000	6	0	6	6	0	0	0	0	6	4,174	1
TOTAL	**162**	**13**	**175**	**154**	**13**	**70**	**83**	**52**	**258**	**36,550**	**7**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:
1. Major anomalies excluded
2. Total Antepartum Deaths + Total Intrapartum Deaths
3. Live Births for each weight category from Alberta (1997) Vital Statistics Annual Review

Table A12 Live Births by Birth Weight Categories, Alberta, 1985-1998

YEAR	Birth weight (grams) <500	<1000	<1500	<2500	≥4000	≥4500
Live Births						
85	0	163	374	2,354	4,693	681
86	0	157	349	2,377	4,815	730
87	0	154	359	2,277	4,546	689
88	0	153	383	2,413	4,442	583
89	0	192	399	2,528	4,703	700
90	42	178	389	2,513	4,745	712
91	27	158	365	2,440	4,656	651
92	29	176	382	2,434	4,766	691
93	32	151	314	2,263	4,606	720
94	41	178	364	2,227	4,493	640
95	44	189	371	2,310	4,372	646
96	35	184	388	2,281	4,364	697
97	34	159	368	2,253	4,175	635
98	29	166	369	2,332	4,636	642
Low/High Birth Weight Rate (per 100 live births)						
85	0.00	0.38	0.86	5.43	10.83	1.57
86	0.00	0.36	0.81	5.49	11.11	1.69
87	0.00	0.37	0.86	5.46	10.90	1.65
88	0.00	0.37	0.92	5.79	10.66	1.40
89	0.00	0.45	0.93	5.88	10.94	1.63
90	0.10	0.42	0.91	5.89	11.13	1.67
91	0.06	0.37	0.86	5.76	10.99	1.54
92	0.07	0.42	0.92	5.84	11.44	1.66
93	0.08	0.38	0.79	5.67	11.54	1.80
94	0.10	0.45	0.92	5.64	11.39	1.62
95	0.11	0.49	0.96	6.00	11.35	1.68
96	0.09	0.49	1.04	6.09	11.64	1.86
97	0.09	0.44	1.01	6.16	11.42	1.74
98	0.08	0.44	0.98	6.20	12.33	1.71

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A13 Low Birth Weight Rate for Singleton Term Births, Alberta, 1985-1998

Year	Total live births	Live singleton term births	Percent live singleton term births	Singleton term low birth weight births	Singleton term low birth weight rate
85	43,327	39,874	92.0	744	1.9
86	43,323	40,026	92.4	793	2.0
87	41,722	38,473	92.2	726	1.9
88	41,683	38,393	92.1	762	2.0
89	42,985	39,615	92.2	793	2.0
90	42,634	39,222	92.0	811	2.1
91	42,371	39,034	92.1	803	2.1
92	41,673	38,314	91.9	764	2.0
93	39,906	36,736	92.1	734	2.0
94	39,459	36,308	92.0	651	1.8
95	38,529	35,384	91.8	668	1.9
96	37,476	34,321	91.6	651	1.9
97	36,551	33,452	91.5	636	1.9
98	37,609	34,287	91.2	651	1.9

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Table A14 Low Birth Weight Pre-Term Births and % Pre-Term Births, Alberta, 1985-1998

YEAR	Low Birth Weight Pre-term	Total	% Pre-Term
85	1,488	2,354	63.2
86	1,471	2,377	61.9
87	1,447	2,277	63.5
88	1,564	2,413	64.8
89	1,587	2,528	62.8
90	1,615	2,513	64.3
91	1,518	2,440	62.2
92	1,547	2,434	63.6
93	1,428	2,263	63.1
94	1,463	2,227	65.7
95	1,558	2,310	67.4
96	1,537	2,281	67.4
97	1,524	2,253	67.6
98	1,582	2,332	67.8

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A15 Low Birth Weight (<2500 grams) Births by Residence and Facility RHA, Alberta, 1985-1998

RHA	Year													
	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Residence RHA														
1	114	129	126	120	129	161	127	120	128	133	129	122	121	105
2	66	51	53	60	63	59	62	54	61	45	77	63	61	73
3	49	46	33	54	35	64	58	49	62	55	44	37	68	49
4	708	701	696	748	795	838	760	741	695	675	752	750	754	805
5	36	24	33	42	36	36	35	30	32	32	42	30	31	34
6	157	175	168	144	190	151	152	163	168	148	165	182	143	165
7	59	75	74	67	81	68	67	59	60	55	60	52	64	50
8	72	61	55	66	72	61	72	71	62	68	72	49	58	66
9	45	36	31	31	35	36	33	34	29	38	41	39	37	33
10	687	740	709	721	744	721	747	750	628	646	640	641	605	639
11	66	74	59	80	70	67	75	91	64	79	57	61	57	58
12	98	95	87	96	88	77	84	92	94	79	78	82	89	78
13	78	72	54	74	84	66	71	74	65	67	68	64	52	77
14	23	15	17	21	16	13	18	13	18	13	17	27	21	12
15	28	27	27	25	32	29	30	30	35	37	28	34	27	34
16	47	32	34	40	34	37	28	37	36	28	21	30	34	23
17	20	23	21	24	24	29	21	26	26	29	19	18	30	30
Unknown	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Alberta	**2,354**	**2,377**	**2,277**	**2,413**	**2,528**	**2,513**	**2,440**	**2,434**	**2,263**	**2,227**	**2,310**	**2,281**	**2,253**	**2,332**
Facility RHA														
1	102	127	118	105	122	151	120	105	106	129	118	112	105	103
2	58	43	34	54	44	37	45	41	53	35	66	44	50	53
3	12	16	12	12	11	21	16	10	14	12	11	6	17	10
4	810	774	783	846	878	954	868	844	818	776	864	848	878	919
5	16	9	13	7	14	15	12	7	13	5	7	7	6	4
6	107	133	128	129	152	117	120	126	117	121	119	136	106	121
7	33	29	39	24	28	24	26	27	26	21	19	18	18	13
8	25	15	17	17	23	15	21	19	17	17	9	6	9	11
9	23	16	20	13	17	13	19	13	15	16	18	23	21	15
10	975	1,053	967	1,032	1,073	1,014	1,015	1,075	942	927	922	947	908	956
11	31	27	9	26	26	21	31	22	15	22	17	11	10	7
12	41	36	34	30	29	26	29	35	31	39	33	27	26	26
13	46	40	30	46	40	41	50	46	35	46	63	42	40	49
14	15	13	14	16	14	6	17	10	14	13	12	13	11	3
15	15	10	20	9	17	16	13	11	8	13	5	9	10	7
16	32	25	30	32	28	26	25	27	27	22	17	20	23	18
17	13	11	9	15	12	16	13	16	12	13	10	12	15	17
Alberta	**2,354**	**2,377**	**2,277**	**2,413**	**2,528**	**2,513**	**2,440**	**2,434**	**2,263**	**2,227**	**2,310**	**2,281**	**2,253**	**2,332**

Notes: Data include Alberta residents only.
Regional Health Authority boundaries are current as of April, 1998

Table A16 Low Birth Weight (<2500 grams) Live Births and Low Birth Weight Live Birth Rate by Age Group of Mother, Alberta, 1985-1998

YEAR	Total	Age Group <20	20-24	25-29	30-34	35-39	>39	Unknown
Low birth weight live births								
85	**2,354**	203	700	871	455	110	15	0
86	**2,377**	219	627	862	530	124	15	0
87	**2,277**	184	601	813	507	157	15	0
88	**2,413**	202	587	858	562	179	25	0
89	**2,528**	234	552	932	590	191	29	0
90	**2,513**	216	566	851	655	200	25	0
91	**2,440**	236	525	789	657	206	27	0
92	**2,434**	195	543	815	642	212	27	0
93	**2,263**	214	499	694	597	232	27	0
94	**2,227**	203	461	669	611	251	32	0
95	**2,310**	194	501	687	596	296	36	0
96	**2,281**	200	494	625	630	293	39	0
97	**2,253**	197	426	671	587	311	61	0
98	**2,320**	204	449	645	623	340	59	12
Low birth weight rate (per 100 live births)								
85	**5.4**	6.5	5.8	5.1	5.2	5.2	5.8	
86	**5.5**	6.9	5.5	5.1	5.6	5.5	6.8	
87	**5.5**	6.0	5.8	5.1	5.3	6.5	5.6	
88	**5.8**	6.7	6.0	5.4	5.6	6.8	7.2	
89	**5.9**	7.4	5.7	5.8	5.4	6.5	8.9	
90	**5.9**	6.6	6.1	5.5	6.0	6.2	6.9	
91	**5.8**	6.9	5.7	5.3	6.0	5.9	6.6	
92	**5.8**	5.9	6.1	5.8	5.6	6.0	6.4	
93	**5.7**	7.1	5.8	5.2	5.5	6.4	6.1	
94	**5.6**	6.7	5.6	5.2	5.6	6.6	6.5	
95	**6.0**	6.4	6.2	5.6	5.5	7.6	7.5	
96	**6.1**	7.4	6.5	5.3	5.9	7.0	6.7	
97	**6.2**	7.7	5.8	5.7	5.9	7.4	9.1	
98	**6.2**	7.8	5.8	5.5	5.9	7.8	8.8	

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A17 Singleton Birth Small or Large for Gestational Age, High Birth Weight, and Mean Birth Weight, Alberta, 1985-1998

Year	Total Live Births	Live Singleton Births	Small for Gestational Age Births (SGA)	SGA rate (per 100 singleton live births)	Large for Gestational Age Births (LGA)	LGA rate (per 100 singleton live births)	High Birth Weight Birth (HBW ≥4,000 grams)	HBW rate (per 100 total live births)	Mean Birth Weight for Live Singleton Term Birth (grams)	Mean Birth Weight for Low Birth Weight Live Birth (grams)
85	43,327	42,478	4,711	11.1	4,119	9.7	4,691	10.8	3,435	2,007
86	43,323	42,512	4,564	10.7	4,169	9.8	4,818	11.1	3,437	2,022
87	41,722	40,855	4,288	10.5	4,015	9.8	4,544	10.9	3,438	1,999
88	41,683	40,863	4,227	10.3	4,049	9.9	4,443	10.7	3,436	2,001
89	42,985	42,069	4,386	10.4	4,093	9.7	4,703	10.9	3,440	2,010
90	42,634	41,765	4,267	10.2	4,215	10.1	4,747	11.1	3,442	1,995
91	42,371	41,493	4,205	10.1	4,118	9.9	4,657	11.0	3,441	2,017
92	41,673	40,724	3,907	9.6	4,426	10.9	4,766	11.4	3,450	2,008
93	39,906	39,043	3,751	9.6	4,037	10.3	4,606	11.5	3,455	2,027
94	39,459	38,589	3,597	9.3	4,018	10.4	4,493	11.4	3,458	1,986
95	38,529	37,630	3,661	9.7	3,945	10.5	4,372	11.3	3,450	1,983
96	37,476	36,589	3,297	9.0	4,086	11.2	4,364	11.6	3,461	1,989
97	36,551	35,621	3,295	9.3	3,828	10.7	4,174	11.4	3,460	1,991
98	37,609	36,604	3,263	8.9	4,266	11.7	4,636	12.3	3,470	1,991

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Table A18 Live Singleton Pre-term Birth Rate, Alberta, 1985-1998

Year	Live singleton pre-term births	Total live singleton births	Singleton pre-term birth rate
85	2,443	42,478	5.8
86	2,358	42,512	5.5
87	2,288	40,855	5.6
88	2,410	40,863	5.9
89	2,403	42,069	5.7
90	2,493	41,765	6.0
91	2,392	41,493	5.8
92	2,365	40,724	5.8
93	2,264	39,043	5.8
94	2,254	38,589	5.8
95	2,212	37,630	5.9
96	2,258	36,589	6.2
97	2,145	35,621	6.0
98	2,293	36,604	6.3

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Table A19 Low Birth Weight, Pre-term, and High Birth Weight Births by Residence and Facility RHA, Alberta, 1996-1998 combined

RHA	Live Births	Low Birth Weight Cases	%	Preterm Cases	%	High Birth Weight Cases	%
Residence							
1	6,471	348	5.4	432	6.7	800	12.4
2	3,586	197	5.5	231	6.4	449	12.5
3	2,644	154	5.8	168	6.4	256	9.7
4	33,806	2,309	6.8	2,554	7.6	3,441	10.2
5	1,897	95	5.0	121	6.4	258	13.6
6	7,640	490	6.4	551	7.2	1,030	13.5
7	3,104	166	5.3	206	6.6	400	12.9
8	3,441	173	5.0	230	6.7	488	14.2
9	1,695	109	6.4	118	7.0	187	11.0
10	29,672	1,885	6.4	2,441	8.2	3,367	11.3
11	3,414	176	5.2	240	7.0	460	13.5
12	4,522	249	5.5	296	6.5	693	15.3
13	3,922	193	4.9	233	5.9	537	13.7
14	945	60	6.3	61	6.5	139	14.7
15	1,550	95	6.1	131	8.5	193	12.5
16	1,757	87	5.0	122	6.9	262	14.9
17	1,565	78	5.0	113	7.2	213	13.6
Unknown	5	2		2		1	
Alberta	**111,636**	**6,866**	**6.2**	**8,250**	**7.4**	**13,174**	11.8
Facility							
1	6,396	320	5.0	397	6.3	797	12.5
2	3,411	147	6.2	187	6.6	436	12.8
3	1,617	33	8.5	29	3.1	165	10.2
4	36,067	2,645	6.5	2,935	8.4	3,681	10.2
5	894	17	12.6	22	2.6	124	13.9
6	7,343	363	6.7	426	5.3	975	13.3
7	2,440	49	6.2	59	2.7	342	14.0
8	1,239	26	15.6	38	4.3	152	12.3
9	1,685	59	5.7	57	3.3	216	12.8
10	36,646	2,811	5.2	3,581	9.9	4,240	11.6
11	1,605	28	10.7	37	2.4	241	15.0
12	3,210	79	7.1	85	2.1	507	15.8
13	3,883	131	6.0	180	4.1	551	14.2
14	1,032	27	3.5	33	2.3	158	15.3
15	1,125	26	8.7	34	1.8	148	13.2
16	1,708	61	3.9	91	5.5	258	15.1
17	1,333	44	7.2	59	5.3	183	13.7
Alberta	**111,634**	**6,866**	**6.2**	**8,250**	**7.4**	**13,174**	**11.8**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: RHA boundaries are current as of 1998.

Table A20 Pre-term (<37 weeks gestation) Live Births by Residence and Facility RHA, Alberta, 1985-1998

	Year													
RHA	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Residence RHA														
1	168	162	170	158	169	208	174	134	178	160	152	150	144	138
2	97	81	82	79	70	91	68	63	59	68	72	65	67	99
3	48	39	47	59	43	61	66	48	57	61	49	47	64	57
4	787	784	744	804	805	913	789	785	759	777	823	830	823	901
5	43	23	57	55	31	45	43	40	36	44	44	40	37	44
6	165	177	164	159	195	186	168	187	193	162	184	212	166	173
7	76	73	86	87	104	65	95	66	75	74	90	71	65	70
8	70	76	61	79	84	68	72	92	55	85	82	64	84	82
9	46	45	27	46	45	40	55	40	29	41	51	35	47	36
10	897	894	874	891	871	886	905	951	826	817	772	837	768	836
11	80	80	76	93	93	84	91	90	66	90	66	86	76	78
12	131	109	100	129	113	114	107	109	100	92	102	104	105	87
13	84	76	55	81	80	76	59	84	68	67	82	82	72	79
14	25	19	22	25	18	12	25	21	21	16	25	24	19	18
15	37	27	25	24	36	41	37	44	39	49	46	48	35	48
16	49	43	47	52	39	37	30	35	44	39	37	39	44	39
17	27	33	29	36	34	29	28	30	42	32	30	35	38	40
Unknown	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Alberta	**2,831**	**2,741**	**2,666**	**2,857**	**2,830**	**2,956**	**2,812**	**2,819**	**2,647**	**2,674**	**2,707**	**2,769**	**2,655**	**2,826**
Facility RHA														
1	154	154	160	145	164	205	163	116	156	153	143	139	124	134
2	80	73	62	67	49	64	49	51	47	52	61	51	58	78
3	18	9	13	12	17	15	9	4	16	10	9	7	4	18
4	906	864	862	920	888	1,042	922	901	888	890	945	942	965	1,028
5	16	5	22	12	6	15	13	7	7	12	6	8	7	7
6	106	129	116	140	154	131	139	146	139	134	137	171	126	129
7	36	28	42	36	34	26	46	20	21	34	25	24	13	22
8	17	20	16	20	12	11	12	15	9	20	12	9	11	18
9	17	22	13	17	12	16	35	19	9	15	23	17	21	19
10	1,256	1,267	1,182	1,285	1,326	1,253	1,236	1,345	1,190	1,173	1,123	1,202	1,164	1,215
11	23	19	12	24	29	21	30	22	19	19	17	12	12	13
12	60	36	40	45	35	44	40	38	28	38	47	35	27	23
13	47	40	26	44	24	45	39	52	35	40	75	72	55	53
14	19	12	22	24	19	9	16	16	18	12	15	15	10	8
15	24	10	18	5	12	18	24	24	13	23	19	17	10	7
16	35	35	43	43	31	26	26	26	35	33	34	28	31	32
17	17	18	17	18	18	15	13	17	17	16	16	20	17	22
Alberta	**2,831**	**2,741**	**2,666**	**2,857**	**2,830**	**2,956**	**2,812**	**2,819**	**2,647**	**2,674**	**2,707**	**2,769**	**2,655**	**2,826**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Notes: RHA boundaries are current as of April, 1998.

Data include Alberta residents only.

Table A21 Pre-term (<37 weeks gestation) Live Births and Pre-term Live Birth Rate by Age Group of Mother, Alberta, 1985-1998

Year	Total	Age group (years) <20	20-24	25-29	30-34	35-39	>39	Unknown
Live births								
85	**2,831**	266	816	1,030	551	145	23	0
86	**2,741**	262	707	988	592	171	21	0
87	**2,666**	203	669	955	630	178	31	0
88	**2,857**	245	684	1,036	645	219	28	0
89	**2,830**	268	632	998	691	204	37	0
90	**2,956**	253	652	1,006	774	245	26	0
91	**2,812**	280	611	901	723	258	39	0
92	**2,819**	242	598	905	767	267	39	1
93	**2,647**	242	573	795	702	298	37	0
94	**2,674**	236	551	820	721	310	36	0
95	**2,707**	243	564	802	720	337	41	0
96	**2,769**	222	543	815	780	359	50	0
97	**2,655**	221	503	797	703	358	73	0
98	**2,826**	240	545	799	757	411	62	12
Pre-term birth rate (per 100 live births)								
85	**6.5**	8.5	6.7	6.1	6.3	6.9	8.8	
86	**6.3**	8.3	6.2	5.9	6.2	7.5	9.5	
87	**6.4**	6.6	6.5	5.9	6.6	7.4	11.7	
88	**6.9**	8.1	7.0	6.5	6.5	8.4	8.1	
89	**6.6**	8.5	6.5	6.2	6.4	7.0	11.3	
90	**6.9**	7.7	7.0	6.5	7.1	7.6	7.2	
91	**6.6**	8.2	6.6	6.1	6.6	7.4	9.6	
92	**6.8**	7.4	6.7	6.4	6.7	7.5	9.2	
93	**6.6**	8.0	6.6	6.0	6.4	8.2	8.3	
94	**6.8**	7.8	6.7	6.3	6.6	8.1	7.3	
95	**7.0**	8.1	7.0	6.6	6.7	8.6	8.5	
96	**7.4**	8.2	7.2	6.9	7.4	8.6	8.6	
97	**7.3**	8.6	6.8	6.8	7.0	8.5	10.8	
98	**7.5**	9.2	7.0	6.8	7.2	9.5	9.3	

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Notes: Regional Health Authority boundaries are current as of April, 1998
Data include Alberta residents only.

Table A22 Multiple Pregnancies, Multiple Births and Perinatal Deaths of Multiple Births by Facility RHA's, Alberta, 1997

Place of Birth	Total Pregnancies	Multiple Pregnancy %	Multiple Pregnancies			Multiple Births			Perinatal Deaths for Multiple Births
			Twins	Triplets	Other	Twins	Triplets	Other	Cases[1]
RHA Hospitals									
1	2,190	1.3	27	1	0	54	3	0	0
2	1,181	1.2	14	0	0	28	0	0	1
3	516	0.0	0	0	0	0	0	0	0
4	11,726	1.6	176	17	0	352	43	0	12
5	317	0.6	2	0	0	4	0	0	0
6	2,258	1.1	23	1	0	46	3	0	0
7	830	0.1	1	0	0	2	0	0	0
8	436	0.2	1	0	0	2	0	0	0
9	581	0.5	3	0	0	6	0	0	0
10	11,704	1.7	193	9	0	384	27	0	32
11	517	0.2	1	0	0	2	0	0	0
12	1,051	0.3	3	0	0	6	0	0	0
13	1,206	0.7	9	0	0	18	0	0	1
14	335	0.6	2	0	0	4	0	0	0
15	344	0.0	0	0	0	0	0	0	0
16	607	1.5	9	0	0	18	0	0	0
17	488	0.0	0	0	0	0	0	0	0
Out-of-Hospital	267	0.0	0	0	0	0	0	0	0
PROVINCIAL TOTAL	**36,554**	**1.3**	**464**	**28**	**0**	**926**	**76**	**0**	**46**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes: 1. Excludes fetal death of one or more multiples prior to 20 weeks gestation.
RHA boundaries are current as of 1997.

Table A23 Multiple Pregnancies, Multiple Births and Perinatal Deaths of Multiple Births, Alberta, 1982-1997

Year	Total Pregnancies	Multiple Pregnancies (MP)				Multiple Births (MB)			Perinatal Deaths of Multiple Births[1]	
		Twins	Triplets	Quads	MP Rate	Total Births	Total MB[2]	MB Rate	Cases	Rate
1982	44,601	432	11	2	1.0	45,300	905	2.0	52	57.4
1983	45,023	419	5	0	0.9	45,770	853	1.9	41	48.1
1984	43,546	416	3	0	1.0	44,235	841	1.9	49	58.3
1985	43,425	429	5	0	1.0	43,945	873	2.0	40	45.8
1986	43,495	407	7	0	1.0	43,853	835	1.9	49	58.7
1987	41,861	448	4	0	1.1	42,356	908	2.1	48	52.9
1988	42,040	401	6	2	1.0	42,459	828	2.0	53	64.0
1989	42,819	463	7	0	1.1	43,293	947	2.2	49	51.7
1990	42,949	446	9	0	1.1	43,398	919	2.1	66	71.8
1991	42,581	464	6	0	1.1	43,092	946	2.2	46	48.6
1992	41,693	474	16	0	1.2	42,203	996	2.4	52	52.2
1993	40,075	442	11	1	1.1	40,531	921	2.3	48	52.1
1994	39,723	456	8	0	1.2	40,190	936	2.3	44	47.0
1995	38,359	459	10	0	1.2	38,837	948	2.4	56	59.0
1996	37,524	456	10	0	1.2	37,911	942	2.5	47	50.5
1997	36,514	464	28	0	1.3	36,885	1,012	2.7	46	45.9

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes: 1. Perinatal Death Rate of Multiple Births = (Perinatal Deaths of Multiple Births (All weights) x1000)/Total Number of Mutiple Births.

2. Total MB includes births in which there was a fetal death of another fetus prior to 20 weeks gestation.

Table A24 Twin, Triplet and Quadruplet Births and Percent of Multiple Births, Alberta, 1985-1998

Year	Total	Twins	Triplets	Quadruplets	%Twins	%Triplets	%Quadruplets
85	**849**	837	12	0	98.6	1.4	0.0
86	**811**	791	20	0	97.5	2.5	0.0
87	**863**	850	13	0	98.5	1.5	0.0
88	**820**	794	18	8	96.8	2.2	1.0
89	**916**	897	19	0	97.9	2.1	0.0
90	**868**	841	27	0	96.9	3.1	0.0
91	**878**	867	11	0	98.7	1.3	0.0
92	**948**	909	39	0	95.9	4.1	0.0
93	**860**	833	23	4	96.9	2.7	0.5
94	**870**	849	21	0	97.6	2.4	0.0
95	**899**	874	25	0	97.2	2.8	0.0
96	**887**	861	26	0	97.1	2.9	0.0
97	**930**	873	57	0	93.9	6.1	0.0
98	**1,005**	968	33	4	96.3	3.3	0.4

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A25 Multiple Live Births by Residence and Facility RHA, Alberta, 1985-1998

		Year													
	Total	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Residence RHA															
1	655	38	53	44	54	46	69	44	38	52	57	55	50	55	38
2	292	16	20	17	34	22	18	23	22	25	18	29	23	25	26
3	253	22	16	16	12	16	10	24	28	20	22	16	16	35	16
4	3,425	238	216	266	230	284	286	265	274	258	236	271	304	296	353
5	192	13	12	20	15	11	16	24	10	6	24	13	12	16	13
6	882	66	60	68	59	74	69	62	88	67	61	70	80	58	79
7	359	22	27	27	23	44	22	32	18	30	30	36	16	32	9
8	364	16	22	21	34	22	20	30	42	30	49	25	19	34	44
9	205	8	8	26	12	14	16	21	23	11	15	24	12	15	22
10	3,222	268	268	254	215	256	227	239	275	243	259	237	235	246	268
11	322	34	20	28	22	31	12	21	29	28	27	16	32	22	27
12	423	42	37	27	45	27	33	21	33	35	14	41	30	38	26
13	310	18	16	12	31	29	28	40	32	18	33	26	14	13	37
14	95	6	8	8	6	8	4	10	12	6	2	8	13	4	3
15	116	6	8	18	10	8	4	4	9	12	8	10	13	6	19
16	168	19	12	8	12	10	25	8	9	15	8	10	10	22	15
17	117	17	8	3	6	14	9	10	6	4	7	12	8	13	10
Alberta	**11,400**	**849**	**811**	**863**	**820**	**916**	**868**	**878**	**948**	**860**	**870**	**899**	**887**	**930**	**1,005**
Facility RHA															
1	630	38	55	44	47	50	67	42	38	43	55	50	48	53	38
2	249	12	12	8	34	18	19	21	20	23	16	28	15	23	21
3	16	4	0	2	0	2	1	2	3	0	2	0	0	0	0
4	3,955	276	248	305	266	312	320	315	313	304	279	317	348	351	399
5	57	7	4	10	0	4	4	6	2	2	6	2	6	4	0
6	698	54	48	54	51	52	45	56	69	49	58	50	64	48	65
7	124	10	7	18	8	16	8	18	4	12	13	6	2	2	2
8	56	0	0	8	2	4	6	8	6	12	8	0	0	2	10
9	72	6	6	8	2	2	5	5	14	4	0	12	2	6	6
10	4,856	384	375	351	361	401	336	351	424	362	376	378	368	389	408
11	53	6	8	6	2	11	0	2	2	4	8	0	2	2	2
12	99	13	10	10	12	6	9	2	11	6	4	8	2	6	2
13	267	16	8	6	21	20	24	34	22	14	33	30	16	23	32
14	72	2	10	10	6	4	4	10	8	8	2	2	2	4	0
15	28	4	2	14	0	0	0	2	2	2	0	0	2	0	2
16	126	10	12	8	8	8	18	4	6	13	8	10	6	15	14
17	42	7	6	1	0	6	2	0	4	2	2	6	4	2	4
Alberta	**11,400**	**849**	**811**	**863**	**820**	**916**	**868**	**878**	**948**	**860**	**870**	**899**	**887**	**930**	**1,005**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A26 Multiple Birth Rate (per 100 live births) for Residence and Facility RHA, Alberta, 1996-1998 combined

	Multiple Birth Rate (per 100 live births)					
	Residence			Facility		
RHA	Total	Live Births	Rate	Total	Live Births	Rate
1	143	6,471	2.2	139	6,471	2.1
2	74	3,586	2.1	59	3,586	1.6
3	67	2,644	2.5	0	2,644	0.0
4	953	33,806	2.8	1,098	33,806	3.2
5	41	1,897	2.2	10	1,897	0.5
6	217	7,640	2.8	177	7,640	2.3
7	57	3,104	1.8	6	3,104	0.2
8	97	3,441	2.8	12	3,441	0.3
9	49	1,695	2.9	14	1,695	0.8
10	749	29,672	2.5	1,165	29,672	3.9
11	81	3,414	2.4	6	3,414	0.2
12	94	4,522	2.1	10	4,522	0.2
13	64	3,922	1.6	71	3,922	1.8
14	20	945	2.1	6	945	0.6
15	38	1,550	2.5	4	1,550	0.3
16	47	1,757	2.7	35	1,757	2.0
17	31	1,565	2.0	10	1,565	0.6
Alberta	**2,822**	**111,636**	**2.5**	**2,822**	**111,636**	**2.5**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Note: Data are for Alberta residents only.

Table A27 Live Multiple Births and Live Multiple Birth Rate by Age Group of Mother, Alberta, 1985-1998

Year	Total	Age group (years) <20	20-24	25-29	30-34	35-39	>39	Unknown
Live multiple births[1]								
85	**849**	29	195	365	210	46	4	0
86	**811**	44	194	316	204	51	2	0
87	**863**	39	185	318	252	65	4	0
88	**820**	34	154	315	240	69	8	0
89	**916**	48	137	349	278	95	9	0
90	**868**	29	146	314	299	74	6	0
91	**878**	37	148	338	263	84	8	0
92	**948**	36	168	343	308	86	7	0
93	**860**	29	188	287	248	98	10	0
94	**870**	36	137	293	295	106	3	0
95	**899**	37	167	281	277	131	6	0
96	**887**	44	150	271	289	119	14	0
97	**930**	26	133	266	310	171	24	0
98	**1,005**	28	129	293	359	166	28	2
Live multiple birth rate (per 100 live births)								
85	**2.0**	0.9	1.6	2.2	2.4	2.2		
86	**1.9**	1.4	1.7	1.9	2.2	2.2		
87	**2.1**	1.3	1.8	2.0	2.6	2.7		
88	**2.0**	1.1	1.6	2.0	2.4	2.6		
89	**2.1**	1.5	1.4	2.2	2.6	3.2		
90	**2.0**	0.9	1.6	2.0	2.7	2.3		
91	**2.1**	1.1	1.6	2.3	2.4	2.4		
92	**2.3**	1.1	1.9	2.4	2.7	2.4		
93	**2.2**	1.0	2.2	2.2	2.3	2.7		
94	**2.2**	1.2	1.7	2.3	2.7	2.8		
95	**2.3**	1.2	2.1	2.3	2.6	3.3		
96	**2.4**	1.6	2.0	2.3	2.7	2.9		
97	**2.5**	1.0	1.8	2.3	3.1	4.0		
98	**2.7**	1.1	1.7	2.5	3.4	3.8		

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Notes: 1. Multiple birth refers to birth in which more than one infant is born.
Data include Alberta residents only.

Table A28 Stillbirth Rate, Low Birth Weight Rate and Pre-term Birth Weight of Multiple Births, Alberta, 1985-1998

	Live Multiple Births[1]	Stillbirths		Low birth weight births[2]		Pre-term births[3]	
Year	Cases	Cases	%	Cases	%	Cases	%
85	**849**	16	1.9	415	48.9	388	45.7
86	**811**	19	2.3	408	50.3	383	47.2
87	**863**	21	2.4	396	45.9	377	43.7
88	**820**	30	3.7	427	52.1	447	54.5
89	**916**	16	1.7	476	52.0	427	46.6
90	**868**	26	3.0	457	52.6	462	53.2
91	**878**	24	2.7	445	50.7	420	47.8
92	**948**	17	1.8	488	51.5	454	47.9
93	**860**	27	3.1	397	46.2	382	44.4
94	**870**	16	1.8	431	49.5	420	48.3
95	**899**	25	2.8	479	53.3	495	55.1
96	**887**	20	2.3	485	54.7	511	57.6
97	**930**	18	1.9	513	55.2	510	54.8
98	**1,005**			537	53.4	536	53.3

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.

Notes: 1. Multiple birth refers to birth in which more than one infant is born.
2. Low birth weight refers to birth weight less than 2,500 grams.
3. Pre-term refers to a period of gestation less than 37 full weeks.
Data include Alberta residents only.

Table A29 Induction Rates, Alberta, 1985 - 1998

Year	Total hospital deliveries[1]	Total Induction		Medical Induction[2]		Surgical Induction[3]		Combined Induction[4]	
		Cases	Rate[5]	Cases	Rate[5]	Cases	Rate[5]	Cases	Rate[5]
85	**43,628**	5,495	12.6	3,756	8.6	1,134	2.6	605	1.4
86	**43,675**	6,258	14.3	4,149	9.5	1,387	3.2	722	1.7
87	**41,910**	5,165	12.3	3,645	8.7	1,051	2.5	469	1.1
88	**41,983**	5,040	12.0	3,450	8.2	1,057	2.5	533	1.3
89	**43,272**	7,085	16.4	4,259	9.8	1,462	3.4	1,364	3.2
90	**43,024**	7,306	17.0	4,487	10.4	1,314	3.1	1,505	3.5
91	**42,676**	7,269	17.0	4,556	10.7	1,354	3.2	1,359	3.2
92	**41,727**	6,964	16.7	4,232	10.1	1,275	3.1	1,457	3.5
93	**40,043**	8,484	21.2	4,356	10.9	2,390	6.0	1,738	4.3
94	**39,554**	8,642	21.8	4,698	11.9	2,256	5.7	1,688	4.3
95	**38,462**	8,414	21.9	5,179	13.5	1,596	4.1	1,639	4.3
96	**37,312**	8,495	22.8	5,757	15.4	1,095	2.9	1,643	4.4
97	**36,387**	8,578	23.6	6,428	17.7	647	1.8	1,503	4.1
98	**37,222**	8,947	24.0	6,876	18.5	559	1.5	1,512	4.1

Source: Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness.

ICD-9 codes: All ICD-9 codes are based on the first three diagnostic codes and the first three procedure codes in the Hospital Morbidity Files.

1. Hospital delivery: Diagnostic codes 640-648 if 5th digit=1 or 2 or 650 or 651-676 if 5th digit=1 or 2 or V27 or procedure codes 72.0 to 74.99
2. Medical induction: Procedure codes 73.4 without 73.01 or 73.1
3. Surgical induction: procedure codes 73.01 and/or 73.1 without 73.4
4. Combined induction: procedure codes: 73.4 with 73.01 and/or 73.1
5. Rate = Cases / Total hospital deliveries * 100

Table A30 Induction Rates by Residence RHA, Alberta, 1996 -1998

RHA[6,7]	Total hospital deliveries[1]	Total Induction		Medical Induction[2]		Surgical Induction[3]		Combined Induction[4]	
		Cases	Rate[5]	Cases	Rate[5]	Cases	Rate[5]	Cases	Rate[5]
1996									
1	1,993	286	14.4	249	12.5	28	1.4	9	0.5
2	1,141	122	10.7	103	9.0	14	1.2	5	0.4
3	832	162	19.5	118	14.2	15	1.8	29	3.5
4	10,983	1,990	18.1	1,198	10.9	234	2.1	558	5.1
5	676	125	18.5	99	14.6	9	1.3	17	2.5
6	2,525	614	24.3	410	16.2	68	2.7	136	5.4
7	1,013	254	25.1	214	21.1	20	2.0	20	2.0
8	1,118	283	25.3	198	17.7	26	2.3	59	5.3
9	500	146	29.2	124	24.8	12	2.4	10	2.0
10	9,768	2,984	30.5	1,812	18.6	521	5.3	651	6.7
11	1,106	323	29.2	247	22.3	27	2.4	49	4.4
12	1,499	371	24.7	297	19.8	32	2.1	42	2.8
13	1,287	260	20.2	246	19.1	11	0.9	3	0.2
14	314	50	15.9	48	15.3	1	0.3	1	0.3
15	512	136	26.6	120	23.4	7	1.4	9	1.8
16	581	116	20.0	68	11.7	35	6.0	13	2.2
17	499	98	19.6	86	17.2	8	1.6	4	0.8
Unknown	965	175	18.1	120	12.4	27	2.8	28	2.9
Alberta	**37,312**	**8,495**	**22.8**	**5,757**	**15.4**	**1,095**	**2.9**	**1,843**	**4.4**
1997									
1	2,100	529	25.2	477	22.7	39	1.9	13	0.6
2	1,159	127	11.0	116	10.0	7	0.6	4	0.3
3	860	187	21.7	140	16.3	18	2.1	29	3.4
4	10,889	2,109	19.4	1,408	12.9	200	1.8	501	4.6
5	641	123	19.2	87	13.6	6	0.9	30	4.7
6	2,452	591	24.1	419	17.1	40	1.6	132	5.4
7	990	204	20.6	173	17.5	12	1.2	19	1.9
8	1,123	276	24.6	205	18.3	25	2.2	46	4.1
9	500	157	31.4	133	26.6	10	2.0	14	2.8
10	9,295	2,744	29.5	2,005	21.6	187	2.0	552	5.9
11	1,059	281	26.5	208	19.6	19	1.8	54	5.1
12	1,473	411	27.9	353	24.0	21	1.4	37	2.5
13	1,236	288	23.3	271	21.9	10	0.8	7	0.6
14	302	46	15.2	46	15.2	0	0.0	0	0.0
15	485	83	17.1	72	14.8	8	1.6	3	0.6
16	555	168	30.3	117	21.1	24	4.3	27	4.9
17	518	105	20.3	89	17.2	8	1.5	8	1.5
Unknown	750	149	19.9	109	14.5	13	1.7	27	3.6
Alberta	**36,387**	**8,578**	**23.6**	**6,428**	**17.7**	**647**	**1.8**	**1,503**	**4.1**
1998									
1	2,001	463	23.1	428	21.4	20	1.0	15	0.7
2	1,217	115	9.4	104	8.5	5	0.4	6	0.5
3	869	169	19.4	120	13.8	17	2.0	32	3.7
4	11,301	2,551	22.6	1,798	15.9	186	1.6	567	5.0
5	638	131	20.5	113	17.7	4	0.6	14	2.2
6	2,446	637	26.0	442	18.1	32	1.3	163	6.7
7	1,019	252	24.7	213	20.9	17	1.7	22	2.2
8	1,112	284	25.5	223	20.1	20	1.8	41	3.7
9	488	144	29.5	120	24.6	6	1.2	18	3.7
10	9,697	2,590	26.7	1,997	20.6	127	1.3	466	4.8
11	1,066	263	24.7	220	20.6	11	1.0	32	3.0
12	1,495	378	25.3	311	20.8	32	2.1	35	2.3
13	1,296	330	25.5	295	22.8	31	2.4	4	0.3
14	321	60	18.7	55	17.1	4	1.2	1	0.3
15	508	141	27.8	108	21.3	13	2.6	20	3.9
16	582	192	33.0	144	24.7	7	1.2	41	7.0
17	490	103	21.0	82	16.7	13	2.7	8	1.6
Unknown	676	144	21.3	103	15.2	14	2.1	27	4.0
Alberta	**37,222**	**8,947**	**24.0**	**6,876**	**18.5**	**559**	**1.5**	**1,512**	**4.1**

Source: Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness.

ICD-9 codes: All ICD-9 codes are based on the first three diagnostic codes and the first three procedure codes in the Hospital Morbidity Files.

1. Hospital delivery: Diagnostic codes 640-648 if 5th digit=1 or 2 or 650 or 651-676 if 5th digit=1 or 2 or V27 or procedure codes 72.0 to 74.99
2. Medical induction: Procedure codes 73.4 without 73.01 or 73.1
3. Surgical induction: procedure codes 73.01 and/or 73.1 without 73.4

Notes:

4. Combined induction: procedure codes: 73.4 with 73.01 and/or 73.1
5. Rate = Cases / Total hospital deliveries * 100
6. RHA boundaries are current as of April, 1998
7. RHA's are by residence of mothers

Data include 'out of province' cases.

Table A31 Operative and Vaginal Breech Deliveries, Alberta, 1985 - 1998

Year	Total hospital deliveries[1]	Caesarean Section[2]		Forceps[3]		Vacuum Extraction[4]		Forceps and/or Vacuum		Vaginal Breech Delivery[5]	
		Cases	Rate[6]	Cases	Rate[6]	Cases	Rate[6]	Cases	Rate[6]	Cases	Rate[6]
85	43,628	7,270	16.7	6,380	14.6	132	0.3	6,512	14.9	454	1.0
86	43,675	7,130	16.3	6,068	13.9	324	0.7	6,392	14.6	389	0.9
87	41,910	7,142	17.0	5,229	12.5	653	1.6	5,882	14.0	343	0.8
88	41,983	7,190	17.1	5,083	12.1	910	2.2	5,993	14.3	350	0.8
89	43,272	7,057	16.3	5,034	11.6	1,662	3.8	6,696	15.5	426	1.0
90	43,024	6,911	16.1	4,463	10.4	2,270	5.3	6,733	15.6	419	1.0
91	42,676	6,846	16.0	3,909	9.2	2,608	6.1	6,517	15.3	393	0.9
92	41,727	6,646	15.9	3,445	8.3	3,008	7.2	6,453	15.5	337	0.8
93	40,043	6,314	15.8	3,241	8.1	3,051	7.6	6,292	15.7	378	0.9
94	39,554	6,214	15.7	3,241	8.2	3,266	8.3	6,507	16.5	342	0.9
95	38,462	6,061	15.8	2,793	7.3	3,619	9.4	6,412	16.7	339	0.9
96	37,312	6,069	16.3	2,669	7.2	3,737	10.0	6,406	17.2	346	0.9
97	36,387	6,005	16.5	2,617	7.2	3,873	10.6	6,490	17.8	280	0.8
98	37,222	6,439	17.3	2,419	6.5	4,035	10.8	6,454	17.3	261	0.7

Source: Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness.

ICD-9 codes: All ICD-9 codes are based on the first three diagnostic codes and the first three procedure codes in the Hospital Morbidity Files.

1. Hospital delivery: Diagnostic codes 640-648 if 5th digit=1 or 2 or 650 or 651-676 if 5th digit=1 or 2 or V27 or procedure codes 72.0 to 74.99
2. Medical induction: Procedure codes 73.4 without 73.01 or 73.1
3. Surgical induction: procedure codes 73.01 and/or 73.1 without 73.4
4. Combined induction: procedure codes: 73.4 with 73.01 and/or 73.1
5. Rate = Cases / Total hospital deliveries * 100

Table A32 Methods of Delivery by Residence RHA, Alberta, 1996- 1998

RHA[8,9]	Total hospital deliveries[1]	Caesarean Section[2]		Forceps[3]		Vacuum Extraction[4]		Vaginal Breech Delivery[5]		Other[6]	
		Cases	Rate[7]	Cases	Rate[7]	Cases	Rate[7]	Cases	Rate[7]	Cases	Rate[7]
1996											
1	1,993	288	14.5	140	7.0	165	8.3	28	1.4	491	24.6
2	1,141	125	11.0	44	3.9	130	11.4	19	1.7	147	12.9
3	832	157	18.9	56	6.7	62	7.5	9	1.1	134	16.1
4	10,983	1,897	17.3	971	8.8	1,240	11.3	137	1.2	3,363	30.6
5	676	123	18.2	44	6.5	79	11.7	2	0.3	104	15.4
6	2,525	437	17.3	125	5.0	60	2.4	30	1.2	275	10.9
7	1,013	206	20.3	79	7.8	68	6.7	8	0.8	45	4.4
8	1,118	145	13.0	68	6.1	130	11.6	10	0.9	131	11.7
9	500	73	14.6	26	5.2	60	12.0	3	0.6	41	8.2
10	9,768	1,572	16.1	770	7.9	1,074	11.0	70	0.7	368	3.7
11	1,106	156	14.1	59	5.3	127	11.5	6	0.5	157	14.2
12	1,499	265	17.7	72	4.8	197	13.1	7	0.5	59	3.9
13	1,287	174	13.5	18	1.4	71	5.5	3	0.2	23	1.8
14	314	65	20.7	10	3.2	31	9.9	1	0.3	7	2.2
15	512	67	13.1	24	4.7	28	5.5	3	0.6	61	11.9
16	581	120	20.7	81	13.9	71	12.2	2	0.3	27	4.6
17	499	49	9.8	13	2.6	54	10.8	1	0.2	6	1.2
Unknown	965	150	15.5	69	7.2	90	9.3	7	0.7	104	10.8
Alberta	37,312	6,069	**16.3**	2,669	**7.2**	3,737	**10.0**	**346**	**0.9**	**5,541**	**14.9**
1997											
1	2,100	304	14.5	94	4.5	205	9.8	11	0.5	397	18.9
2	1,159	116	10.0	36	3.1	120	10.4	13	1.1	136	11.7
3	860	141	16.4	47	5.5	90	10.5	13	1.5	126	14.7
4	10,889	1,776	16.3	1,056	9.7	1,340	12.3	107	1.0	3,021	27.7
5	641	119	18.6	53	8.3	73	11.4	5	0.8	108	16.8
6	2,452	432	17.6	133	5.4	47	1.9	26	1.1	756	30.8
7	990	222	22.4	69	7.0	67	6.8	3	0.3	84	8.5
8	1,123	157	14.0	61	5.4	150	13.4	5	0.4	148	13.0
9	500	62	12.4	32	6.4	57	11.4	2	0.4	50	10.0
10	9,295	1,608	17.3	726	7.8	1,117	12.0	64	0.7	359	3.9
11	1,059	144	13.6	67	6.3	109	10.3	7	0.7	158	14.9
12	1,473	272	18.5	78	5.3	230	15.6	5	0.3	136	9.2
13	1,236	187	15.1	10	0.8	66	5.3	1	0.1	47	3.8
14	302	65	21.5	10	3.3	21	7.0	1	0.3	8	2.6
15	485	58	12.0	21	4.3	32	6.6	5	1.0	58	12.0
16	555	145	26.1	58	10.5	34	6.1	2	0.4	36	6.5
17	518	64	12.4	7	1.4	49	9.5	1	0.2	3	0.6
Unknown	750	133	17.7	59	7.9	66	8.8	9	1.2	77	10.3
Alberta	36,387	6,005	**16.5**	2,617	**7.2**	3,873	**10.6**	**280**	**0.8**	**5,706**	**15.7**
1998											
1	2,001	294	14.7	104	5.2	199	9.9	24	1.2	374	18.7
2	1,217	147	12.1	27	2.2	103	8.5	10	0.8	147	12.1
3	869	157	18.1	66	7.6	89	10.2	9	1.0	159	18.3
4	11,301	1,983	17.5	927	8.2	1,437	12.7	84	0.7	2,330	20.6
5	638	111	17.4	41	6.4	67	10.5	3	0.5	115	18.0
6	2,446	447	18.3	116	4.7	48	2.0	18	0.7	278	11.4
7	1,019	228	22.4	72	7.1	87	8.5	6	0.6	54	5.3
8	1,112	169	15.2	72	6.5	157	14.1	6	0.5	112	10.1
9	488	53	10.9	21	4.3	54	11.1	1	0.2	43	8.8
10	9,697	1,728	17.8	711	7.3	1,168	12.0	78	0.8	334	3.4
11	1,066	157	14.7	55	5.2	142	13.3	2	0.2	158	14.8
12	1,495	276	18.5	64	4.3	208	13.9	4	0.3	141	9.4
13	1,296	214	16.5	15	1.2	93	7.2	5	0.4	55	4.2
14	321	72	22.4	3	0.9	26	8.1	1	0.3	13	4.0
15	508	89	17.5	20	3.9	23	4.5	3	0.6	29	5.7
16	582	125	21.5	67	11.5	28	4.8	3	0.5	53	9.1
17	490	59	12.0	9	1.8	52	10.6	0	0.0	2	0.4
Unknown	676	130	19.2	29	4.3	54	8.0	4	0.6	79	11.7
Alberta	37,222	6,439	**17.3**	2,419	**6.5**	4,035	**10.8**	**261**	**0.7**	**4,476**	**12.0**

Source: Canadian Institute of Health Information Inpatient Files, Alberta Health and Wellness.

ICD-9 codes: All ICD-9 codes are based on the first three diagnostic codes and the first three procedure codes in the Hospital Morbidity Files.

1. Hospital delivery: Diagnostic codes 640-648 if 5th digit=1 or 2 or 650 or 651-676 if 5th digit=1 or 2 or V27 or procedure codes 72.0 to 74.99.
2. Caesarean section: Procedure code 74.0, 74.1, 74.2, 74.4, 74.99.
3. Forceps: Procedure 72.0 or 72.1 or 72.2 or 72.21 or 72.29 or 72.3 or 72.31 or 72.39.
4. Vacuum Extraction: Procedure 72.7.
5. Vaginal breech: Diagnostic code 652.2 or procedure codes 72.5 or 72.6.
6. Other: Procedure 72.8 or 72.9 or 73.2 or 73.5 or 73.8 or 73.9.
7. Rate = Cases / Total hospital deliveries * 100.

Notes:

8. RHA boundaries are current as of April, 1998.
9. RHA's are by residence of mothers.

Data include 'out of province' cases.

Table A33 Caesarean Sections, Primary and Repeat Rates, Deaths, Trial of Labour, and Vaginal Births After Caesarean, by Facility RHA, Alberta, 1997

RHA	Total Births[1]	Caesarean Section Births		Primary Caesarean Section			Repeat Caesarean Section		Caesarean Section Perinatal & Neonatal Deaths	Trial of Labour		VBAC[2]		
		Total	Rate[3]	Cases	Rate[4]	% of total[5]	Cases	Rate[6]	Cases	Attempted	Attempted Rate[7]	Successful	Rate[8]	Success Rate[9]
1	2,190	331	15.1	191	8.7	57.7	140	6.4	3	85	41.1	67	32.4	78.8
2	1,181	105	8.9	80	6.8	76.2	25	2.1	0	58	80.6	47	65.3	81.0
3	516	59	11.4	37	7.2	62.7	22	4.3	0	28	60.9	24	52.2	85.7
4	11,726	1,977	16.9	1,370	11.7	69.3	607	5.2	21	786	73.5	462	43.2	58.8
5	317	64	20.2	37	11.7	57.8	27	8.5	0	18	46.2	12	30.8	66.7
6	2,258	415	18.4	256	11.3	61.7	159	7.0	2	130	50.2	100	38.6	76.9
7	830	164	19.8	74	8.9	45.1	90	10.8	1	25	23.1	18	16.7	72.0
8	436	47	10.8	29	6.7	61.7	18	4.1	0	15	55.6	9	33.3	60.0
9	581	45	7.7	24	4.1	53.3	21	3.6	0	10	32.3	10	32.3	100.0
10	11,704	2,112	18.0	1,342	11.5	63.5	770	6.6	29	666	52.0	511	39.9	76.7
11	517	52	10.1	28	5.4	53.8	24	4.6	0	14	41.2	10	29.4	71.4
12	1,051	167	15.9	102	9.7	61.1	65	6.2	0	28	32.2	22	25.3	78.6
13	1,206	192	15.9	99	8.2	51.6	93	7.7	2	93	70.5	39	29.5	41.9
14	335	64	19.1	25	7.5	39.1	39	11.6	1	11	24.4	6	13.3	54.5
15	344	22	6.4	15	4.4	68.2	7	2.0	0	8	53.3	8	53.3	100.0
16	607	145	23.9	91	15.0	62.8	54	8.9	0	23	29.9	23	29.9	100.0
17	448	36	8.0	21	4.7	58.3	15	3.3	0	14	48.3	14	48.3	100.0
TOTAL	**36,247**	**5,997**	**16.5**	**3,821**	**10.5**	**63.7**	**2,176**	**6.0**	**59**	**2,012**	**56.5**	**1,382**	**38.8**	**68.7**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. Excludes out-of-hospital births.
2. VBAC = Vaginal Birth After Caesarean.
3. (Total Caesarean Sections / Total Births) x 100.
4. (Primary Caesarean Sections / Total Births) x 100.
5. Primary Caesareans / Total Caesareans.
6. (Repeat Caesarean Sections / Total Births) x 100.
7. (Attempted VBAC's / (Repeat Caesarean Sections + Successful VBAC's)) x 100.
8. (Successful VBAC's / (Repeat Caesarean Sections + Successful VBAC's)) x 100.
9. Successful VBAC's / Attempted VBAC's x 100.

RHA boundaries are current as of 1997.

Table A34 Caesarean Section and Vaginal Birth After Caesarean Rates, Alberta, 1992 - 1997

Year	Caesarean Section Rate[1]	Repeat Caesarean Section Rate[2]	Trial of Labour Rate[3]	VBAC Rate[4]	VBAC Success Rate[5]
1992	15.9	5.9	51.0	40.0	77.0
1993	15.7	5.9	52.0	39.0	74.0
1994	15.8	5.7	60.5	43.0	71.0
1995	15.8	5.5	58.3	42.9	73.6
1996	16.2	5.5	58.3	44.0	75.5
1997	16.5	6.0	56.5	38.8	68.7

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:
1. Caesarean Sections / Total Mothers Delivered X 100.
2. (Repeat Caesarean Sections / Total Mothers Delivered) x 100.
3. Attempted Vaginal Births After Caesarean (VBAC's) / (Repeat Caesarean Sections + Successful VBAC's) X 100.
4. Successful VBAC's / (Repeat Caesarean Sections + Successful VBAC's) X 100.
5. Successful VBAC's / Attempted VBAC's X 100.

Table A35 Planned Home Births and Unplanned Out-of-Hospital Births, Alberta, 1985 - 1997

Year	Planned Home Births						Unplanned Out-of-Hospital Births					
	Live Births	Still Births	Early Neonatal Death	Late Neonatal Death	Total Births	Total Deaths[2]	Live Births	Still Births	Early Neonatal Death	Late Neonatal Death	Total Births	Total Deaths
1985	124	0	1	0	124	1	53	4	3	0	57	7
1986	118	1	1	0	119	2	57	5	4	1	62	10
1987	103	0	0	0	103	0	51	3	2	0	54	5
1988	117	0	0	1	117	1	60	7	3	1	67	11
1989	103	0	0	0	103	0	48	4	1	0	52	5
1990	87	0	0	0	87	0	71	3	1	0	74	4
1991	82	0	0	0	82	0	48	4	1	0	52	5
1992	79	2	1	0	81	3	25	2	2	1	27	5
1993	76	0	1	0	76	1	29	2	1	0	31	3
1994	173	1	0	0	174	1	55	3	2	0	58	5
1995	157	1	1	0	158	2	40	1	0	0	41	1
1996	194	0	2	0	194	2	35	4	4	1	39	9
1997	210	3	2	0	212	5	44	1	6	0	45	7

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Note: 1. Number of planned home deliveries transferred to hospital not available.

2. Includes delivery in hospital after transfer from planned home delivery.

Table A36 Induced Abortions by Age, and Age-Specific Induced Abortion Rates, Alberta, 1985 -1998

Year	Total	< 15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	> 44	Unknown
					Age Group							
Number of induced abortions												
85	**6,499**	57	643	937	1,580	2,244	1,411	760	354	83	10	0
86	**6,237**	38	607	857	1,464	2,199	1,321	759	358	93	5	0
87	**5,465**	44	538	815	1,353	1,788	1,227	663	289	93	8	0
88	**6,203**	33	563	985	1,548	2,015	1,372	760	362	108	5	0
89	**6,502**	54	513	965	1,478	2,077	1,498	855	412	117	11	0
90	**6,559**	44	515	907	1,422	2,131	1,426	952	447	131	6	0
91	**6,803**	47	578	911	1,489	2,155	1,466	1,003	508	128	7	0
92	**8,552**	76	816	1097	1,913	2,692	1,849	1,227	645	141	9	0
93	**8,905**	63	885	1,212	2,097	2,817	1,737	1,290	739	154	8	0
94	**8,983**	59	832	1,276	2,108	2,813	1,794	1,318	708	179	4	0
95	**8,906**	69	817	1,203	2,020	2,773	1,795	1,277	758	207	7	0
96	**9,240**	38	851	1,250	2,101	2,907	1,937	1,220	800	221	15	1
97	**10,313**	47	911	1,390	2,301	3,272	2,081	1,423	903	275	11	0
98	**10,346**	57	955	1,442	2,397	3,263	2,109	1,321	898	280	21	0
Age-specific rate (per 1,000 women in each age group)[1,2]												
	15-49	< 15	15-17	18-19	15-19	20-24	25-29	30-34	35-39	40-44	> 44	
85	**9.9**	0.7	12.0	25.1	17.4	19.0	11.0	7.0	3.9	1.3	0.2	
86	**9.2**	0.4	11.0	22.5	15.7	18.6	10.0	6.6	3.7	1.3	0.1	
87	**8.0**	0.5	9.9	21.6	14.7	16.0	9.4	5.6	3.0	1.2	0.1	
88	**9.0**	0.4	10.6	25.6	16.9	18.9	10.7	6.3	3.7	1.3	0.1	
89	**9.4**	0.6	9.8	25.1	16.3	20.3	11.8	6.9	4.0	1.4	0.2	
90	**9.3**	0.5	9.8	24.2	15.8	21.0	11.4	7.5	4.1	1.5	0.1	
91	**9.5**	0.5	10.9	24.9	16.6	21.4	12.1	7.8	4.5	1.4	0.1	
92	**11.8**	0.8	15.0	30.4	21.2	27.2	15.9	9.4	5.5	1.5	0.1	
93	**12.2**	0.6	16.2	33.5	23.1	28.8	15.6	9.8	6.1	1.6	0.1	
94	**12.2**	0.6	15.0	35.0	22.9	29.5	16.9	10.2	5.7	1.7	0.0	
95	**12.1**	0.7	14.5	32.4	21.6	29.6	17.5	10.1	6.0	1.9	0.1	
96	**12.4**	0.4	14.6	33.4	22.0	31.3	19.1	10.1	6.2	2.0	0.2	
97	**13.6**	0.4	15.2	36.4	23.4	34.4	20.5	12.1	6.9	2.3	0.1	
98	**13.4**	0.5	15.3	36.4	23.5	33.2	20.3	11.5	6.8	2.3	0.2	

Sources Clinics Files, Alberta Health and Wellness.
Alberta Health Care Insurance Plan Registration File, Alberta Health and Wellness.

Notes: 1. Age-specific rate refers to number of induced abortions per 1,000 women in a specific age group.
2. The age-specific rates for age groups <15 and >44 are calculated based on female populations in 10-14 and 45-49 age groups respectively. Populations are estimated at March 31, as viewed at September 30 of each year.

Table A37 Induced Abortions by Facility Type, Alberta, 1985 - 1998

Year	Total	Acute Care Hospital		Private Clinic	
		Cases	Percent	Cases	Percent
85	**6,499**	6,499	100.0	0	0.0
86	**6,237**	6,237	100.0	0	0.0
87	**5,465**	5,465	100.0	0	0.0
88	**6,203**	6,203	100.0	0	0.0
89	**6,502**	6,502	100.0	0	0.0
90	**6,559**	6,559	100.0	0	0.0
91	**6,803**	6,292	92.5	511	7.5
92	**8,552**	6,131	71.7	2,421	28.3
93	**8,905**	6,368	71.5	2,537	28.5
94	**8,983**	6,696	74.5	2,287	25.5
95	**8,906**	6,607	74.2	2,299	25.8
96	**9,240**	5,955	64.5	3,285	35.6
97	**10,313**	6,353	61.6	3,960	38.4
98	**10,346**	6,053	58.5	4,293	41.5

Sources: Clinics Files, Alberta Health and Wellness.
Notes: Calculations are based on Alberta Residents only.
The clinics opened in the Fall of 1991.

Table A38 Induced Abortions by Facility Regions, Alberta, 1985 - 1998

Year	Total	Edmonton (HOSPITALS AND CLINICS)		Calgary (HOSPITALS AND CLINICS)		Rural Areas (HOSPITALS)	
	Cases	Cases	%	Cases	%	Cases	%
85	**6,499**	3,079	47.4	2,373	36.5	1,047	16.1
86	**6,237**	3,166	50.8	2,040	32.7	1,031	16.5
87	**5,465**	3,072	56.2	1,288	23.6	1,105	20.2
88	**6,203**	3,199	51.6	1,919	30.9	1,085	17.5
89	**6,502**	3,132	48.2	2,385	36.7	985	15.2
90	**6,559**	3,490	53.2	2,387	36.4	682	10.4
91	**6,803**	3,234	47.5	2,831	41.6	738	10.9
92	**8,552**	4,549	53.2	3,527	41.2	476	5.6
93	**8,905**	4,722	53.0	3,659	41.1	524	5.9
94	**8,983**	4,840	53.9	3,595	40.0	548	6.1
95	**8,906**	4,755	53.4	3,624	40.7	527	5.9
96	**9,240**	4,917	53.2	3,855	41.7	468	5.1
97	**10,313**	5,398	52.3	4,462	43.3	453	4.4
98	**10,346**	5,668	54.8	4,297	41.5	381	3.7

Sources: Clinics Files, Alberta Health and Wellness.
Notes: Calculations are based on Alberta residents only.
The clinics opened in the Fall of 1991.

Table A39 Induced Abortions by Week of Gestation and Age Group, Alberta, 1996 - 1998

Age Group	Total Cases	Week of Gestation: < 9 Cases	%	9 -12 Cases	%	13 -16 Cases	%	17-20 Cases	%	>20 Cases	%	Unknown Cases	%
1996													
<15	**38**	8	21.1	23	60.5	3	7.9	4	10.5	0	0.0		
15-17	**851**	241	28.3	530	62.3	53	6.2	27	3.2	0	0.0		
18-19	**1,250**	405	32.4	733	58.6	81	6.5	30	2.4	1	0.1		
15-19	**2,101**	646	30.7	1,263	60.1	134	6.4	57	2.7	1	0.0		
20-24	**2,907**	1,027	35.3	1,655	56.9	163	5.6	59	2.0	3	0.1		
25-29	**1,937**	803	41.5	1,013	52.3	84	4.3	36	1.9	1	0.1		
30-34	**1,220**	568	46.6	560	45.9	58	4.8	32	2.6	2	0.2		
35-39	**800**	353	44.1	392	49.0	34	4.3	21	2.6	0	0.0		
40-44	**221**	96	43.4	103	46.6	14	6.3	8	3.6	0	0.0		
>44	**15**	9	60.0	6	40.0	0	0.0	0	0.0	0	0.0		
Unknown	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0		
Total	**9,240**	3,510	38.0	5,016	54.3	490	5.3	217	2.4	7	0.1		
1997													
<15	**47**	14	29.8	23	48.9	7	14.9	2	4.3	1	2.1		
15-17	**911**	353	38.8	432	47.4	94	10.3	30	3.3	2	0.2		
18-19	**1,390**	593	42.7	662	47.6	104	7.5	31	2.2	0	0.0		
15-19	**2,301**	946	41.1	1,094	47.5	198	8.6	61	2.7	2	0.1		
20-24	**3,272**	1,524	46.6	1,465	44.8	191	5.8	91	2.8	1	0.0		
25-29	**2,081**	1,101	52.9	826	39.7	111	5.3	42	2.0	1	0.1		
30-34	**1,423**	821	57.7	524	36.8	52	3.7	26	1.8	0	0.0		
35-39	**903**	504	55.8	330	36.5	48	5.3	21	2.3	0	0.0		
40-44	**275**	153	55.6	93	33.8	19	6.9	10	3.6	0	0.0		
>44	**11**	10	90.9	1	9.1	0	0.0	0	0.0	0	0.0		
Total	**10,313**	5,073	49.2	4,356	42.2	626	6.1	253	2.5	5	0.1		
1998													
<15	**57**	16	28.1	31	54.4	6	10.5	4	7.0	0	0.0	0	0.0
15-17	**955**	315	33.0	485	50.8	98	10.3	55	5.8	2	0.2	0	0.0
18-19	**1,442**	493	34.2	724	50.2	159	11.0	63	4.4	3	0.2	0	0.0
15-19	**2,397**	808	33.7	1,209	50.4	257	10.7	118	4.9	5	0.2	0	0.0
20-24	**3,263**	1407	43.1	1,491	45.7	259	7.9	101	3.1	3	0.1	2	0.1
25-29	**2,109**	995	47.2	892	42.3	143	6.8	74	3.5	5	0.2	0	0.0
30-34	**1,321**	702	53.1	511	38.7	73	5.5	29	2.2	4	0.3	2	0.2
35-39	**898**	489	54.5	329	36.6	39	4.3	34	3.8	5	0.6	2	0.2
40-44	**280**	156	55.7	101	36.1	9	3.2	12	4.3	2	0.7	0	0.0
>44	**21**	12	57.1	6	28.6	0	0.0	3	14.3	0	0.0	0	0.0
Total	**10,346**	4585	44.3	4570	44.2	786	7.6	375	3.6	24	0.2	6	0.1

Source: Clinics Files, Alberta Health and Wellness.
Note: Calculations are based on Alberta residents only.

Table A40 Induced Abortions by Week of Gestation and Facility Type, Alberta, 1985 - 1998

Year	Total	Week of Gestation											
		<9		9-12		13-16		17-20		>20		Unknown	
	Cases	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%
All Facilities													
85	**6,499**	1,914	29.5	4,037	62.1	408	6.3	132	2.0	8	0.1	0	0.0
86	**6,237**	1,576	25.3	4,047	64.9	451	7.2	159	2.6	4	0.1	0	0.0
87	**5,465**	1,521	27.8	3,408	62.4	341	6.2	186	3.4	9	0.2	0	0.0
88	**6,203**	1,692	27.3	3,838	61.9	477	7.7	188	3.0	8	0.1	0	0.0
89	**6,502**	1,785	27.5	4,388	67.5	265	4.1	54	0.8	9	0.1	1	0.0
90	**6,559**	2,055	31.3	4,256	64.9	200	3.1	44	0.7	4	0.1	0	0.0
91	**6,803**	1,324	19.5	5,089	74.8	338	5.0	49	0.7	3	0.0	0	0.0
92	**8,552**	2,585	30.2	5,179	60.6	637	7.5	144	1.7	7	0.1	0	0.0
93	**8,905**	2,460	27.6	5,606	63.0	651	7.3	180	2.0	8	0.1	0	0.0
94	**8,983**	2,643	29.4	5,584	62.2	549	6.1	198	2.2	9	0.1	0	0.0
95	**8,906**	2,500	28.1	5,691	63.9	502	5.6	195	2.2	18	0.2	0	0.0
96	**9,240**	3,510	38.0	5,016	54.3	490	5.3	217	2.4	7	0.1	0	0.0
97	**10,313**	5,073	49.2	4,356	42.2	626	6.1	253	2.5	5	0.1	0	0.0
98	**10,346**	4,585	44.3	4,570	44.2	786	7.6	375	3.6	24	0.2	6	0.1
Acute Care Hospitals													
85	**6,499**	1,914	29.5	4,037	62.1	408	6.3	132	2.0	8	0.1	0	0.0
86	**6,237**	1,576	25.3	4,047	64.9	451	7.2	159	2.6	4	0.1	0	0.0
87	**5,465**	1,521	27.8	3,408	62.4	341	6.2	186	3.4	9	0.2	0	0.0
88	**6,203**	1,692	27.3	3,838	61.9	477	7.7	188	3.0	8	0.1	0	0.0
89	**6,502**	1,785	27.5	4,388	67.5	265	4.1	54	0.8	9	0.1	1	0.0
90	**6,559**	2,055	31.3	4,256	64.9	200	3.1	44	0.7	4	0.1	0	0.0
91	**6,292**	1,284	20.4	4,747	75.5	219	3.5	39	0.6	3	0.1	0	0.0
92	**6,131**	2,098	34.2	3,869	63.1	117	1.9	43	0.7	4	0.1	0	0.0
93	**6,368**	1,889	29.7	4,295	67.5	140	2.2	38	0.6	6	0.1	0	0.0
94	**6,696**	2,030	30.3	4,485	67.0	132	2.0	44	0.7	5	0.1	0	0.0
95	**6,607**	1,550	23.5	4,853	73.5	139	2.1	53	0.8	12	0.2	0	0.0
96	**5,955**	1,938	32.5	3,790	63.6	151	2.5	74	1.2	2	0.0	0	0.0
97	**6,353**	2,907	45.8	2,983	47.0	352	5.5	108	1.7	3	0.1	0	0.0
98	**6,053**	2,338	38.6	3,115	51.5	380	6.3	203	3.4	17	0.3	0	0.0
Private Clinics													
91	**511**	40	7.8	342	66.9	119	23.3	10	2.0	0	0.0	0	0.0
92	**2,421**	487	20.1	1,310	54.1	520	21.5	101	4.2	3	0.1	0	0.0
93	**2,537**	571	22.5	1,311	51.7	511	20.1	142	5.6	2	0.1	0	0.0
94	**2,287**	613	26.8	1,099	48.1	417	18.2	154	6.7	4	0.2	0	0.0
95	**2,299**	950	41.3	838	36.5	363	15.8	142	6.2	6	0.3	0	0.0
96	**3,285**	1,572	47.9	1,226	37.3	339	10.3	143	4.4	5	0.2	0	0.0
97	**3,960**	2,166	54.7	1,373	34.7	274	6.9	145	3.7	2	0.1	0	0.0
98	**4,293**	2,247	52.3	1,455	33.9	406	9.5	172	4.0	7	0.2	6	0.1

Source: Clinics Files, Alberta Health and Wellness.

Notes: Calculations are based on Alberta residents only.
The clinics opened in the Fall of 1991.

Table A41 Weight Specific Perinatal and Neonatal Mortality, Alberta, 1997

Birth Weight	Perinatal					Neonatal				
	Total Births	Perinatal Deaths	Perinatal Deaths Excluding Major Congenital Anomalies	Perinatal Mortality Rate (PMR)[1]	Corrected Perinatal Mortality Rate[2]	Live Births[3]	Neonatal Deaths	Neonatal Deaths Excluding Major Congenital Anomalies	Neonatal Mortality Rate (NMR)[4]	Corrected Neonatal Mortality Rate[5]
<500	110	112	95	1000.0[6]	1000.0[6]	36	34	32	944	941.2
500 - 749	116	80	62	689.7	632.7	66	35	33	530.3	515.6
750 - 999	85	20	15	235.3	187.5	72	11	9	152.8	128.6
1000 - 1249	120	22	12	183.3	109.1	107	7	3	65.4	29.1
1250 - 1499	122	7	3	57.4	25.4	115	2	0	17.4	0.0
1500 - 1749	159	16	10	100.6	65.4	146	3	0	20.5	0.0
1750 - 1999	314	16	7	51.0	23.0	307	9	2	29.3	6.7
2000 - 2499	1,512	28	21	18.5	14.0	1,492	10	2	6.7	1.3
2500 - 2999	5,754	23	19	4.0	3.3	5,736	8	1	1.4	0.2
3000 - 3999	24,770	50	39	2.0	1.6	24,737	19	9	0.8	0.4
4000 - 4499	3,582	6	6	1.7	1.7	3,579	4	4	1.1	1.1
>=4500	647	3	3	4.6	4.6	644	0	0	0.0	0.0
Total	**37,291**	**383**	**292**	**10.3**	**7.8**	**37,037**	**142**	**95**	**3.8**	**2.6**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. ((Perinatal Deaths) / Total Births) x 1000.
2. ((Perinatal Deaths - Congenital Anomalies) / (Total Births - Congenital Anomalies)) x 1000.
3. Figures obtained from Vital Statistics Annual Review 1997; excludes babies with birth weights listed as 0 or "unknown".
4. ((Early Neonatal Death + Late Neonatal Deaths) / Live Births) x 1000.
5. ((Early Neonatal Deaths + Late Neonatal Deaths - Congenital Anomalies) / (Live Births - Congenital Anomalies)) x 1000.
6. Perinatal Deaths total more than Total Births in this category due to the fact that some live <500g babies are incorrectly not registered as live births. The rates have consequently been adjusted downward to 1000 to correct for this fact.

Table A42 Weight Specific Perinatal and Neonatal Mortality, Alberta, 1993 -1997 combined

Birth Weight	Perinatal					Neonatal				
	Total Births	Perinatal Deaths	Perinatal Deaths Excluding Major Congenital Anomalies	Perinatal Mortality Rate (PMR)[1]	Corrected Perinatal Mortality Rate[2]	Live Births[3]	Neonatal Deaths	Neonatal Deaths Excluding Major Congenital Anomalies	Neonatal Mortality Rate (NMR)[4]	Corrected Neonatal Mortality Rate[5]
<500	552	568	466	1000.0[6]	1000.0[6]	193	180	162	932.6	925.7
500 - 749	556	370	306	665.5	622.0	359	206	190	573.8	553.9
750 - 999	441	118	87	267.6	212.2	365	58	42	158.9	120.3
1000 - 1249	508	92	55	181.1	116.8	451	40	20	88.7	46.4
1250 - 1499	617	73	38	118.3	65.3	570	30	7	52.6	12.8
1500 - 1749	906	82	52	90.5	59.4	844	24	4	28.4	4.9
1750 - 1999	1,429	88	59	61.6	42.1	1,365	29	8	21.2	6.0
2000 - 2499	7,662	144	86	18.8	11.3	7,567	59	12	7.8	1.6
2500 - 2999	30,271	168	123	5.5	4.1	30,149	67	19	2.2	0.6
3000 - 3999	130,303	267	211	2.0	1.6	130,123	129	67	1.0	0.5
4000 - 4499	18,915	28	25	1.5	1.3	18,897	13	9	0.7	0.5
>=4500	3,384	16	13	4.7	3.8	3,372	4	2	1.2	0.6
Total	**195,544**	**2,014**	**1,521**	**10.3**	**7.8**	**194,255**	**839**	**542**	**4.3**	**2.8**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. ((Perinatal Deaths) / Total Births) x 1000.
2. ((Perinatal Deaths - Congenital Anomalies) / (Total Births - Congenital Anomalies)) x 1000.
3. Figures obtained from Vital Statistics Annual Review 1993 - 1997; excludes babies with birth weights listed as 0 or "unknown".
4. ((Early Neonatal Death + Late Neonatal Deaths) / Live Births) x 1000.
5. ((Early Neonatal Deaths + Late Neonatal Deaths - Congenital Anomalies) / (Live Births - Congenital Anomalies)) x 1000.
6. Perinatal Deaths total more than Total Births in this category due to the fact that some live <500g babies are incorrectly not registered as live births. The rates have consequently been adjusted downward to 1000 to correct for this fact.

Table A43 Perinatal and Neonatal Mortality Rates by Length of Gestation, Alberta, 1997

Gestational Age (Weeks)	Live Births	Stillbirths	Early Neonatal Deaths	Late Neonatal Deaths	Perinatal Mortality Rate (per 1,000 total births)[1,2]	Neonatal Mortality Rate (per 1,000 live births)[2]
<24	55	95	55	2	1000.0	1036.4
24	31	16	8	2	510.6	322.6
25	26	8	4	2	352.9	230.8
26	40	6	8	1	304.3	225.0
27	29	9	4	1	342.1	172.4
28	41	1	0	0	23.8	0.0
29	55	4	0	0	67.8	0.0
30	80	7	3	0	114.9	37.5
31	88	7	1	1	84.2	22.7
32	113	6	1	0	58.8	8.8
33	220	9	3	0	52.4	13.6
34	338	11	3	1	40.1	11.8
35	531	3	4	0	13.1	7.5
36	1113	12	2	1	12.4	2.7
37	2189	13	5	2	8.2	3.2
38	5212	17	6	2	4.4	1.5
39	8622	14	5	2	2.2	0.8
40	11858	14	7	0	1.8	0.6
41	5680	5	5	0	1.8	0.9
42	692	1	1	0	2.9	1.4
>42	24	0	0	0	0.0	0.0
Total	**37,037**	**258**	**125**	**17**	**10.3**	**3.8**

Sources: Vital Statistics Annual Review 1997, Alberta Vital Statistics.
Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes: 1. Total Births = Live Births + Stillbirths.
2. Perinatal and neonatal mortality rates are not corrected.

Table A44 Perinatal and Neonatal Mortality Rates by Length of Gestation, Alberta, 1993 - 1997 Combined

Gestational Age (Weeks)	Live Births	Stillbirths	Early Neonatal Deaths	Late Neonatal Deaths	Perinatal Mortality Rate (per 1,000 total births)[1,2]	Neonatal Mortality Rate (per 1,000 live births)[2]
<24	293	410	268	8	964.4	942.0
24	142	70	63	16	627.4	556.3
25	151	45	30	10	382.7	264.9
26	149	25	33	6	333.3	261.7
27	178	42	22	7	290.9	162.9
28	205	30	5	5	148.9	48.8
29	292	34	10	0	135.0	34.2
30	352	36	16	1	134.0	48.3
31	475	38	9	2	91.6	23.2
32	681	50	20	1	95.8	30.8
33	1026	45	14	2	55.1	15.6
34	1675	49	20	4	40.0	14.3
35	2616	39	16	3	20.7	7.3
36	5660	50	17	9	11.7	4.6
37	11164	63	34	12	8.6	4.1
38	27124	82	33	15	4.2	1.8
39	44781	89	24	14	2.5	0.8
40	63563	70	41	12	1.7	0.8
41	28945	35	19	10	1.9	1.0
42	4648	14	7	1	4.5	1.7
>42	138	1	0	0	7.2	0.0
Total	**194,258**	**1,317**	**701**	**138**	**10.3**	**4.3**

Sources: Vital Statistics Annual Review 1993 - 1997, Alberta Vital Statistics.
Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes: 1. Total Births = Live Births + Stillbirths
2. Perinatal and neonatal mortality rates are not corrected.

Table A45 Stillbirths and Neonatal Mortality By Maternal Age (Corrected for Congenital Anomalies), Alberta, 1997

Maternal Age	Live Births	% of Total Births[1]	Stillbirths	Early Neonatal Deaths	Late Neonatal Deaths	Perinatal Mortality Rate (PMR)[2]	PMR Corrected for Congenital Anomalies	Neonatal Mortality Rate (NMR)[2]	NMR Corrected for Congenital Anomalies	Mortality Rate[3]	Mortality Rate Corrected for Congenital Anomalies
≤17	861	2.3	9	8	1	19.5	10.3	10.5	3.5	20.7	11.5
18-29	20,755	56.0	137	73	12	10.1	7.4	4.1	2.7	10.6	7.7
30-39	14,261	39.0	108	40	4	10.3	8.3	3.1	2.0	10.6	8.4
≥35	4,900	13.0	53	15	1	13.7	11.7	3.3	2.4	13.9	11.9
≥39	673	1.8	4	4	0	11.8	8.9	5.9	3.0	11.8	8.9

Sources: Number of live births for maternal age from Vital Statistics Annual Review, 1997.
Still Births and neonatal deaths as reported to Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:
1. Total Births = Live Births + Stillbirths (= 37,296 across all age groups).
2. Per 1,000 Total Births in each age group.
3. ((Stillbirths + Neonatal Deaths) / Total Births in each age Group) x 1000.

Table A46 Perinatal and Neonatal Statistics[1] by Facility RHA, Alberta, 1997

RHA	Total Births[2]	Stillbirth Rate[3]	Perinatal Mortality Rate[4]	Neonatal Mortality Rate[5]	Total Caesarean Section Rate[6]	Primary Caesarean Section Rate[7]	Extremely Low Birth Weight %[8]	Very Low Birth Weight %[9]	Low Birth Weight %[10]
1	2,219	2.7	5.4	2.7	15.1	8.7	0.4	0.6	5.0
2	1,195	5.0	5.9	0.8	8.9	6.8	0.0	0.3	4.8
3	516	0.0	0.0	0.0	11.4	7.2	0.0	0.0	3.3
4	11,927	5.0	7.7	3.0	16.9	11.7	0.6	1.5	7.7
5	319	3.1	6.3	3.1	20.2	11.7	0.3	0.3	1.9
6	2,283	3.1	3.5	0.9	18.4	11.3	0.0	0.1	4.6
7	831	6.0	7.2	1.2	19.8	8.9	0.1	0.1	2.4
8	437	0.0	0.0	0.0	10.8	6.7	0.0	0.0	1.6
9	584	5.1	5.1	0.0	7.7	4.1	0.3	0.3	3.3
10	11,915	6.0	9.4	4.4	18.4	11.5	0.8	1.6	8.0
11	518	1.9	1.9	0.0	10.1	5.4	0.0	0.0	1.7
12	924	2.2	3.2	2.2	15.9	9.7	0.1	0.2	2.1
13	1,215	5.8	5.8	0.0	15.9	8.2	0.0	0.0	4.1
14	337	11.9	11.9	0.0	19.1	7.5	0.0	0.3	3.6
15	344	5.9	5.9	0.0	6.5	4.5	0.0	0.0	2.1
16	616	4.9	4.9	0.0	23.9	15.0	0.7	1.0	4.7
17	448	0.0	2.2	2.2	8.0	4.7	0.2	0.4	2.9
TOTAL	**36,628**	**4.9**	**7.2**	**2.8**	**16.5**	**10.5**	**0.5**	**1.1**	**6.4**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. All calculations exclude babies with birth weights less than 500 grams and include non-residents born in Alberta.
2. Out-of-hospital births excluded.
3. (Stillbirths / Total Births) x 1000.
4. ((Stillbirths + Early Neonatal Deaths) / Total Births) x 1000.
5. ((Early + Late Neonatal Deaths) / Total Births) x 1000.
6. (Total Caesarean Sections / Total Mothers Delivered) x 100.
7. (Primary Caesarean Sections / Total Mothers Delivered) x 100.
8. (Live Births < 100.0g / All Live Births) x 100.
9. (Live Births < 1500g / All Live Births) x 100.
10. (Live Births < 2500g / All Live Births) x 100.

RHA boundaries are current as of 1997.

Table A47 Perinatal and Neonatal Statistics[1] by Level of Hospital, Alberta, 1997

Hospitals	Total Births[2]	Stillbirth Rate[3]	Perinatal Mortality Rate[4]	Neonatal Mortality Rate[5]	Total Caesarean Section Rate[6]	Primary Caesarean Section Rate[7]	Extremely Low Birth Weight %[8]	Very Low Birth Weight %[9]	Low Birth Weight %[10]
Level III									
RAH/UAH[11]	4,719	9.4	16.5	8.9	21.6	15.1	1.8	3.7	14.2
Foothills	4,425	7.7	13.2	6.2	16.1	11.7	1.5	3.5	11.5
LEVEL III TOTAL	9,144	8.6	14.9	7.6	18.9	13.4	1.7	3.6	12.9
Level II									
Misericordia	2,478	4.0	5.3	2.0	13.2	4.7	0.2	0.3	3.7
Grey Nuns	3,378	2.7	4.2	1.8	18.5	12.6	0.2	0.4	4.6
Lougheed	3,739	4.0	5.4	1.6	16.4	11.4	0.2	0.5	6.8
Rockyview	3,763	2.9	3.7	0.8	18.2	12.0	0.03	0.3	4.2
Red Deer	1,649	4.2	4.9	0.6	21.1	12.7	0.0	0.1	5.9
Grande Prairie	1,032	6.8	6.8	0.0	17.8	9.0	0.0	0.0	3.1
Lethbridge Reg.	1,696	3.0	5.9	3.0	15.5	9.2	0.3	0.7	6.1
Medicine Hat	909	5.5	6.6	1.1	9.9	7.7	0.0	0.4	5.9
LEVEL II TOTAL	18,644	3.7	4.9	1.5	16.8	10.4	0.1	0.4	5.1
Level I									
North	6,982	4.0	4.4	0.7	14.0	8.0	0.1	0.2	2.8
South	1,858	1.6	2.7	1.1	12.2	7.2	0.05	0.1	1.9
LEVEL I TOTAL	8,840	3.5	4.1	0.8	13.6	7.9	0.1	0.2	2.6
TOTAL	**36,628**	**4.9**	**7.2**	**2.8**	**16.5**	**10.5**	**0.5**	**1.1**	**6.4**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. All calculations exclude babies with birth weights less than 500 grams and include non-residents born in Alberta.
2. Out-of-hospital births excluded.
3. (Stillbirths / Total Births) x 1000.
4. ((Stillbirths + Early Neonatal Deaths) / Total Births) x 1000.
5. ((Early + Late Neonatal Deaths) / Total Births) x 1000.
6. (Total Caesarean Sections / Mothers Delivered) x 100.
7. (Primary Caesarean Sections / Mothers Delivered) x 100.
8. (Live Births < 1000g / All Live Births) x 100.
9. (Live Births < 1500g / All Live Births) x 100.
10. (Live Births < 2500g / All Live Births) x 100.
11. RAH = Royal Alexandra Hospital; UAH = University of Alberta Hospital.

Table A48 Perinatal and Corrected (for Major Anomalies) Perinatal Mortality Rates by Facility RHA's, Alberta, 1997

Place of Birth	Total Births	Total Births		Stillbirths				Early Neonatal Deaths				Perinatal Mortality Rate[1, 2]		Corrected Perinatal Mortality Rate[3]	
						Major Anomalies				Major Anomalies					
		≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g
RHA Hospitals															
1	2,219	2,215	2,209	6	4	1	0	6	4	2	2	5.4	3.6	4.1	2.7
2	1,195	1,194	1,193	6	5	0	0	1	1	1	1	5.9	5.0	5.0	4.2
3	516	516	516	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
4	11,927	11,884	11,791	60	33	17	6	32	20	15	13	7.7	4.5	5.0	2.9
5	319	319	318	1	1	0	0	1	0	0	0	6.3	3.1	6.3	3.1
6	2,283	2,281	2,280	7	6	0	0	1	1	1	1	3.5	3.1	3.1	2.6
7	831	831	830	5	4	2	2	1	1	0	0	7.2	6.0	4.8	3.6
8	437	437	437	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
9	584	583	579	3	1	0	0	0	0	0	0	5.1	1.7	5.1	1.7
10	11,915	11,856	11,771	71	49	14	7	41	20	16	15	9.4	5.9	6.9	4.0
11	518	517	517	1	1	0	0	0	0	0	0	1.9	1.9	1.9	1.9
12	924	924	922	2	1	1	0	1	0	0	0	3.2	1.1	2.2	1.1
13	1,215	1,213	1,209	7	3	1	0	0	0	0	0	5.8	2.5	4.9	2.5
14	337	337	336	4	3	0	0	0	0	0	0	11.9	8.9	11.9	8.9
15	344	341	341	2	2	0	0	0	0	0	0	5.9	5.9	5.9	5.9
16	616	613	610	3	2	1	1	0	0	0	0	4.9	3.3	3.3	1.6
17	448	447	446	0	0	0	0	1	0	0	0	2.2	0.0	2.2	0.0
TOTAL HOSPITAL BIRTHS	**36,628**	**36,508**	**36,305**	**178**	**115**	**37**	**16**	**85**	**47**	**35**	**32**	**7.2**	**4.5**	**5.2**	**3.1**
Out-of-Hospital															
Planned	212	212	212	2	2	0	0	0	0	0	0	9.4	9.4	9.4	9.4
Unplanned	45	44	43	0	0	0	0	6	5	2	1	136.4	116.3	90.9	93.0
TOTAL OUT-OF-HOSPITAL BIRTHS	**257**	**256**	**255**	**2**	**2**	**0**	**0**	**6**	**5**	**2**	**1**	**31.3**	**27.5**	**23.4**	**23.5**
PROVINCIAL TOTAL	**36,885***	**36,764**	**36,560**	**180**	**117**	**37**	**16**	**91**	**52**	**37**	**33**	**7.4**	**4.6**	**5.4**	**3.3**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. (Stillbirths(≥500g) + Early Neonatal Deaths(≥500g)) / Total Births (≥500g) X 1000.
2. (Stillbirths(≥1000g) + Early Neonatal Deaths(≥1000g)) / Total Births (≥1000g) X 1000.
3. Corrected rates exclude deaths due to major anomalies.
4. Vital Statistics Alberta reports 37037 Live Births (born in Alberta) in 1997.

RHA boundaries are current as of 1997.

Table A49 Neonatal, Post-neonatal and Infant Mortality Rates, Alberta, 1985-1998

Year	Neonatal Deaths[1]	Post-Neonatal Deaths[2]	Infant Deaths[3]	Neonatal Mortality Rate per 1,000 Live Births	Post-Neonatal Mortality Rate per 1,000 Live Births	Infant Mortality Rate per 1,000 Live Births
85	202	142	344	4.7	3.3	7.9
86	214	172	386	4.9	4.0	8.9
87	178	133	311	4.3	3.2	7.5
88	183	157	340	4.4	3.8	8.2
89	180	139	319	4.2	3.2	7.4
90	215	123	338	5.0	2.9	7.9
91	145	138	283	3.4	3.3	6.7
92	194	105	299	4.7	2.5	7.2
93	158	104	262	4.0	2.6	6.6
94	185	105	290	4.7	2.7	7.3
95	186	81	267	4.8	2.1	6.9
96	147	84	231	3.9	2.2	6.2
97	126	54	180	3.4	1.5	4.9
98	104	73	177	2.8	1.9	4.7

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Vital Statistics, Death File, Department of Government Services, April 1999 release.

Notes:
1. Neonatal deaths refers to deaths of live born infants occurring less than 28 full days after birth.
2. Post-neonatal deaths refers to deaths to children occurring between 28 full days and less than a year of age.
3. Infant deaths refers to deaths to children under one year of age per 1,000 live births.
Data include Alberta Residents only

Table A50 Infant Deaths by Residence RHA and Facility RHA, Alberta, 1985-1998

	Year													
	85	86	87	88	89	90	91	92	93	94	95	96	97	98
Residence RHA														
1	16	20	24	14	23	18	19	14	16	20	18	14	15	8
2	7	8	3	11	11	10	7	8	5	6	8	9	6	11
3	3	3	5	6	4	5	9	7	7	9	4	3	5	5
4	89	92	72	82	83	111	63	86	73	72	68	58	41	44
5	3	4	11	8	3	2	4	4	10	8	4	7	4	1
6	32	29	18	18	21	23	18	11	32	21	20	16	8	12
7	8	16	11	10	7	8	9	10	3	12	9	8	5	3
8	5	10	9	11	10	12	9	9	2	11	5	4	7	7
9	11	8	3	11	10	6	6	8	2	8	7	8	6	3
10	109	132	111	106	91	92	98	90	62	82	82	53	56	47
11	17	8	14	13	6	8	9	12	9	10	6	6	4	5
12	12	10	14	16	16	9	9	15	16	10	12	11	8	7
13	11	16	4	12	18	14	9	6	8	9	10	12	6	5
14	4	7	0	2	1	2	5	3	3	2	2	4	2	2
15	9	9	2	4	6	5	4	5	3	4	3	7	2	3
16	7	5	5	10	4	6	3	5	5	3	3	3	4	3
17	1	9	5	6	5	7	2	6	6	3	6	8	1	11
Alberta	**344**	**386**	**311**	**340**	**319**	**338**	**283**	**299**	**262**	**290**	**267**	**231**	**180**	**177**
Facility RHA														
1	11	12	17	9	18	14	16	10	7	11	11	9	8	4
2	3	4	1	5	5	3	2	4	5	5	6	6	2	5
3	4	1	1	3	1	2	6	1	1	3	1	1	2	2
4	107	103	94	99	91	121	73	98	99	90	81	73	54	52
5	1	2	3	4	1	0	1	3	0	3	1	2	1	2
6	11	12	6	6	12	10	10	6	16	9	8	13	3	7
7	6	5	7	4	1	2	5	3	2	2	2	2	1	0
8	3	7	3	3	5	2	2	4	0	9	1	1	1	2
9	6	3	0	8	6	5	2	3	2	5	4	2	2	3
10	159	210	161	172	155	154	144	140	108	138	133	99	93	86
11	9	1	5	5	2	4	3	5	1	3	2	3	0	2
12	6	3	9	5	8	3	5	7	9	5	5	3	5	2
13	3	7	1	6	8	7	6	5	3	2	3	6	3	5
14	3	5	0	1	0	1	3	2	3	1	1	2	1	0
15	6	3	2	1	2	3	2	1	2	2	3	1	1	2
16	6	2	1	6	2	3	1	2	2	0	2	2	2	1
17	0	6	0	3	2	4	2	5	2	2	3	6	1	2
Alberta	**344**	**386**	**311**	**340**	**319**	**338**	**283**	**299**	**262**	**290**	**267**	**231**	**180**	**177**

Source: Vital Statistics, Death File, Department of Government Services, April 1999 release.

Notes: Infant deaths refers to deaths to children under one year of age.
RHA boundaries are current as of 1998.
Data include Alberta Residents only.

Table A51 Neonatal, Post-neonatal and Infant Mortality Rates By Residence and Facility RHA, Alberta, 1996-1998 combined

RHA	Neonatal Deaths	Post-Neonatal Deaths	Infant Deaths	Live Births	Neonatal Mortality Rate per 1000 Live Births	Post-Neonatal Mortality Rate per 1000 Live Births	Infant Mortality Rate per 1000 Live Births
Residence							
1	24	13	37	6,471	3.7	2.0	5.7
2	13	13	26	3,586	3.6	3.6	7.3
3	6	7	13	2,644	2.3	2.6	4.9
4	96	47	143	33,806	2.8	1.4	4.2
5	9	3	12	1,897	4.7	1.6	6.3
6	21	15	36	7,640	2.7	2.0	4.7
7	12	4	16	3,104	3.9	1.3	5.2
8	11	7	18	3,441	3.2	2.0	5.2
9	14	3	17	1,695	8.3	1.8	10.0
10	107	49	156	29,672	3.6	1.7	5.3
11	8	7	15	3,414	2.3	2.1	4.4
12	17	9	26	4,522	3.8	2.0	5.7
13	10	13	23	3,922	2.5	3.3	5.9
14	3	5	8	945	3.2	5.3	8.5
15	9	3	12	1,550	5.8	1.9	7.7
16	4	6	10	1,757	2.3	3.4	5.7
17	13	7	20	1,565	8.3	4.5	12.8
Unknown	0	0	0	5			
Alberta	**377**	**211**	**588**	**111,636**	**3.4**	**1.9**	**5.3**
Facility							
1	12	9	21	6,396	1.9	1.4	3.3
2	4	9	13	3,411	1.2	2.6	3.8
3	1	4	5	1,617	0.6	2.5	3.1
4	125	54	179	36,069	3.5	1.5	5.0
5	3	2	5	894	3.4	2.2	5.6
6	12	11	23	7,343	1.6	1.5	3.1
7	1	2	3	2,440	0.4	0.8	1.2
8	0	4	4	1,239	0.0	3.2	3.2
9	3	4	7	1,685	1.8	2.4	4.2
10	202	76	278	36,646	5.5	2.1	7.6
11	0	5	5	1,605	0.0	3.1	3.1
12	2	8	10	3,210	0.6	2.5	3.1
13	5	9	14	3,883	1.3	2.3	3.6
14	0	3	3	1,032	0.0	2.9	2.9
15	1	3	4	1,125	0.9	2.7	3.6
16	1	4	5	1,708	0.6	2.3	2.9
17	5	4	9	1,333	3.8	3.0	6.8
Alberta	**377**	**211**	**588**	**111,636**	**3.4**	**1.9**	**5.3**

Source: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Vital Statistics, Death File, Department of Government Services, April 1999 release.

Notes: 1. Neonatal deaths refers to deaths of live born infants occurring less than 28 full days after birth.
2. Post-neonatal deaths refers to deaths to children occurring between 28 full days and less than one year of age.
3. Infant deaths refers to deaths to children under one year of age.
RHA boundaries are current as of 1998.
Data include Alberta Residents only

Table A52 Infant mortality rates by gender, Alberta, 1985 - 1998

Year	Infant mortalities		Live births		Infant mortality rate	
	Female	Male	Female	Male	Female	Male
85	148	195	21,104	22,222	7.0	8.8
86	162	224	21,142	22,181	7.7	10.1
87	135	176	20,215	21,507	6.7	8.2
88	142	198	20,544	21,139	6.9	9.4
89	128	190	21,038	21,946	6.1	8.7
90	144	194	20,655	21,979	7.0	8.8
91	129	154	20,757	21,614	6.2	7.1
92	140	159	20,396	21,277	6.9	7.5
93	117	144	19,432	20,473	6.0	7.0
94	123	167	19,110	20,349	6.4	8.2
95	117	150	18,854	19,675	6.2	7.6
96	99	132	18,070	19,406	5.5	6.8
97	77	103	17,802	18,749	4.3	5.5
98	72	105	18,279	19,328	3.9	5.4

Sources: Vital Statistics, Birth File, Department of Government Services, April 1999 release.
Vital Statistics, Death File, Department of Government Services, April 1999 release.

Table A53 Neonatal and Corrected (for Major Anomalies) Neonatal Mortality Rates by Facility RHA's, Alberta, 1997

Place of Birth	Total Births	Total Births		Early Neonatal Deaths				Late Neonatal Deaths				Neonatal Mortality Rate[1,2]		Corrected Neonatal Mortality Rate[3]	
						Major Anomalies				Major Anomalies					
		≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g	≥500g	≥1000g
RHA Hospitals															
1	2,210	2,209	2,205	6	4	2	2	0	0	0	0	2.7	1.8	1.8	0.9
2	1,188	1,188	1,188	1	1	1	1	0	0	0	0	0.8	0.8	0.0	0.0
3	516	516	516	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
4	11,831	11,824	11,758	32	20	15	13	4	2	2	2	3.0	1.9	1.6	0.6
5	318	318	317	1	0	0	0	0	0	0	0	3.1	0.0	3.1	0.0
6	2,274	2,274	2,274	1	1	1	1	1	1	0	0	0.9	0.9	0.4	0.4
7	826	826	825	1	1	0	0	0	0	0	0	1.2	1.2	1.2	1.2
8	437	437	437	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
9	581	580	578	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
10	11,817	11,785	11,722	41	20	16	15	11	6	6	6	4.4	2.2	2.5	0.4
11	516	516	516	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
12	922	922	921	1	0	0	0	1	1	0	0	2.2	1.1	2.2	1.1
13	1,206	1,206	1,206	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
14	333	333	333	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
15	339	339	339	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
16	612	610	608	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
17	447	447	446	1	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
TOTAL HOSPITAL BIRTHS	**36,373**	**36,330**	**36,189**	**85**	**47**	**35**	**32**	**17**	**10**	**8**	**8**	**2.2**	**0.0**	**2.2**	**0.0**
Out-of-Hospital												**2.8**	**1.6**	**1.6**	**0.5**
Planned	210	210	210	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0
Unplanned	44	44	43	6	5	2	1	0	0	0	0	136.4	116.3	90.9	93.0
TOTAL OUT-OF-HOSPITAL BIRTHS	**254**	**254**	**253**	**6**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**23.6**	**19.8**	**15.7**	**15.8**
PROVINCIAL TOTAL	**36,627**[4]	**36,584**	**36,442**	**91**	**52**	**37**	**33**	**17**	**10**	**8**	**8**	**3.0**	**1.7**	**1.7**	**0.6**

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals.

Notes:

1. Neonatal Mortality Rate(≥500) = (Early Neonatal Deaths(≥500) + Late Neonatal Deaths (≥500)) / Total Births (≥500) X 1000.
2. Neonatal Mortality Rate(≥1000) = (Early Neonatal Deaths(≥1000) + Late Neonatal Deaths (≥1000)) / Total Births (≥1000) X 1000.
3. Corrected rates exclude deaths due to major anomalies.
4. Vital Statistics Alberta reports 37037 Live Births (born in Alberta) in 1997.

RHA boundaries are current as of 1997.

Table A54 Maternal Mortality Totals and Rates, Alberta, 1961-1997

Year[2]	Total	Maternal Deaths			Rates[1]	
		Direct	Indirect	Unrelated	Overall	Direct
61-65	**18**	8	4	6	4.9	2.2
66-70	**11**	4	2	5	3.6	1.3
71-75	**10**	3	1	6	3.3	1.0
76-80	**6**	1	2	3	1.7	0.3
81-85	**7**	2	2	3	1.6	0.5
86-90	**8**	2	1	5	1.9	0.5
91-95	**5**	2	2	1	1.2	0.5
1996	**6**	2	2	2	1.6	0.5
1997	**1**	1	0	0	0.3	0.3

Source: Statistics reported to the Committee on Reproductive Care by Medical Records Departments of the hospitals. Alberta Vital Statistics.

Notes: 1. Rates are per 10,000 live births.
2. All figures (except 1996 & 1997) are for the five year period combined.